MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101

MDE

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Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Kendl P. Philbrick
Secretary

MAY 17 2004

CERTIFIED MAIL: NOTICE OF VIOLATION

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson MD 20842

RE: Radioactive Material License #MD-31-025-01

Dear Mr. Ransohoff:

This letter refers to the radioactive materials inspection conducted by Ms. Mary Lally, and Messrs. Ray Manley, Bob Nelson and Alan Jacobson of the Maryland Department of the Environment's (MDE) Radiological Health Program (RHP) on February 23, 24 and March 4, 2004. The inspection team examined radiation safety and compliance with the conditions of your license. They evaluated adherence to procedures and proper maintenance of records, through interviews with personnel, general observations, and independent measurements.

During the inspection, certain activities were found to be in violation of the Department's requirements. These findings were discussed with Ms. Kathy Bupp, and Messrs. Jeffrey Williams, and William Ransohoff during the licensee management exit interview held on March 4, 2004. The violations found are listed in the enclosed "Description of Violations." In addition to the violations found, the RHP has identified the following concerns:

1. Inspection findings reveal that NPI still does not have sufficient trained personnel, financial resources and management commitment to decommission the Limited Access Area (LAA) in a timely, safe and predictable manner as required.

2. NPI continues to release radioactive materials into the environment in an uncontrolled manner.

3. Dickerson residents living near the plant are being exposed to unnecessary levels of radiation caused by radioactive waste stored on site. NPI has consistently and irresponsibly missed many waste shipment deadlines. NPI still does not have a written plan or a commitment from management

to ship approximately 2500 curies of radioactive waste prior to the August 2004 deadline.

4. NPI has still not submitted an adequate decommissioning plan or waste disposal plan prepared in accordance with licensed waste shipment criteria.

5. Specific to the long ongoing and unclosed nature of many violations, NPI management and their Health Physics Consultant have not been effective in resolving these violations and concerns. Most of these violations and concerns are not being addressed in either the monthly radiation protection audits or the annual review of the radiation protection program-content and implementation. The monthly audits were often found to address issues unrelated to problems at the Dickerson facility and appear to provide only minimal improvement to the radiation safety program at NPI

6. NPI continues to operate under a court order-permanent injunction without an approved waste disposal plan and an approved decommissioning plan. Furthermore, NPI still has not implemented corrective actions necessary to comply with ongoing violations regarding waste disposal, soil concentration limits, radiation levels, releases of radioactive material, financial assurance for decommissioning and license termination.

As a result of these findings, you are required to take immediate action to correct the violations and to respond to this letter and the enclosed "Description of Violations" within twenty (20) calendar days of your receipt of this notice. Written statements should be provided for the concerns and each of the violations and concerns indicating:

a. Corrective steps, which have been or will be taken by you to remedy the present violations and concerns, and the results achieved or anticipated;

b. Corrective steps which will be taken to avoid further violations and concerns, who will undertake these steps, and who will supervise them; and

c. The date when full compliance will be achieved.

Failure to provide these statements in the required time frame may result in the Department taking escalated enforcement action under Maryland Radiation Regulations to:

(a) modify, revoke or suspend your license,

(b) issue a Departmental Order under the Annotated Code of Maryland, Environment Article, Sections 1-301 and 8-101 through 8-601, and

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(c) seek an administrative penalty of up to $1,000 per violation, per day [Section 8-150(b)], or a civil penalty in Circuit Court in an amount not exceeding $10,000 per violation, per day [Section 8-509(b)].

Please be reminded that Departmental compliance letters and licensee responses shall be posted pursuant to the requirements of the Maryland regulations, Section J.11(d) titled, "Posting of Notices to Workers." If you have any questions concerning this letter, please call Messrs. Alan Jacobson, or Raymond E. Manley at (410) 537-3301. You may also reach our office toll-free (in Maryland only) by dialing 1-800-633-6101 and requesting extension 3301. Also, you may contact this office via facsimile at (410) 537-3198.

Sincerely,

Roland G. Fletcher, Manager III
Radiological Health Program

RGF/REM/ADJ/cc
Enclosures: Description of Violations

DESCRIPTION OF VIOLATIONS

Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson MD 20842

RE: Radioactive Material License #MD-31-025-01

Certain activities conducted under your license were found to be in violation of the Code of Maryland Regulations 26.12.01.01 titled, "Regulations for Control of Ionizing Radiation." These violations are presented below:

1. Section C.31 titled, "Specific Terms and Conditions of License", License Condition 22.B(2), require, in part, that all soils, wherever found, contaminated by NPI licensed activities and exhibiting levels of cobalt-60 contamination exceeding 8 picocuries per gram above background, must be removed by NPI and properly stored/disposed of as radioactive waste. The Montgomery County Circuit Court Order-Civil Case 199036 (Montgomery County Circuit Court Order) dated November 3, 2000 requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license. The Stipulation and Settlement of Civil Case No. 76639 in the Circuit Court of Montgomery County dated January 3, 1994 further required NPI to demonstrate compliance with these requirements by June 15, 1994.

   Contrary to the above, NPI failed to remove cobalt-60 contaminated soil exceeding the above-specified limit. NPI has been in continuous violation of this requirement since May 23, 1989. For example, NPI still has not removed the soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0 picocurie per gram concentration limit. Furthermore, monthly soil samples collected from the dry pond area and analyzed by NPI personnel in January, February, March, June, July, September and November, 2003 also exceeded this regulatory limit and were not removed by NPI. On March 4, 2004, MDE Inspectors collected 12 soil samples from the dry pond and adjacent areas. Results of laboratory analysis indicate soil concentrations that ranged from 10-304 picocuries per gram. NPI has missed the June 15, 1994 deadline and deliberately continues to refuse remediation this property.

2. Section D.101(a) titled, "*Radiation Protection Programs*" states that in addition to complying with all other provisions of these regulations, a licensee shall use all means to maintain radiation exposures and releases of radioactive material as low as reasonably achievable (ALARA). The Montgomery County Circuit Court

Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

A. Contrary to the above, NPI failed to use all means necessary to maintain releases of radioactive material as low as reasonably achievable. Specifically, NPI has failed to use reasonable means such as the adequate containment of radioactive materials, proper waste storage practices and regular shipments of radioactive waste, to a licensed repository. On March 4, 2003, MDE inspectors collected 12 soil samples from the dry pond and adjacent areas that exceeded regulatory limits. Furthermore, MDE inspectors identified two contaminated areas on a residential property. As a result, NPI is not maintaining control over their radioactive material and it is releasing it in an uncontrolled manner. Contaminated areas of the LAA still lack adequate containment and release pathways are not continuously monitored. NPI still refuses to adequately clean all contaminated areas, remove all contaminated soils, ship radioactive waste as required and install engineering containment necessary to prevent uncontrolled releases of radioactive material.

B. Contrary to the above, NPI failed to use all means necessary to maintain radiation exposures to levels as low as reasonably achievable. Specifically, NPI failed to use all reasonable means such as shielding of radioactive waste in storage and shipment of radioactive waste in accordance with license conditions. As a result NPI employees and residents living near the plant are exposed to unnecessary levels of radiation emitted from the waste storage areas that are not ALARA.

3. Section C.31 titled, "Specific Terms and Conditions of License" and License Condition 21.B requires that within 90 days of the issuance of the license, NPI must submit to the Department for approval a comprehensive plan for disposal of all low level radioactive wastes in accordance with those specifications defined in the condition. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI's low-level radioactive waste disposal plan was submitted to MDE on December 10, 1999. The Department reviewed the plan and determined it to be inadequate. Deficiencies in NPI's low-level radioactive waste disposal plan were defined in a March 20, 2000 Departmental letter. Specifically, the plan submitted by NPI failed to include a waste shipment schedule that met required deadlines described in License Condition 21.B. As of this date, NPI has not submitted an acceptable comprehensive plan to the Department nor adequately responded to the Department's deficiency letter.

4. Section C.29(C)(2) titled, "Financial Assurance and Recordkeeping for Decommissioning" requires the licensee to submit a Decommissioning funding

plan and financial assurance in accordance with dates and criteria set forth in this section. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all current requirements of the applicable statutes, regulations and the provisions of the license.

> Contrary to the above, NPI failed to provide an adequate decommissioning funding plan and financial assurance instrument necessary to pay for decommissioning of the license accordance with the criteria set forth in this regulation. On October 20, 2000, the RHP received NPI's Decommissioning Plan dated October 27, 2000, which included a planned schedule for radioactive waste shipments. The Department reviewed this plan and determined that it was inadequate because it failed to demonstrate compliance with current radioactive material license waste disposal criteria. For example, Table 2.1 of described a 12-year shipment schedule resulting in only a small fraction of the total activity of current radioactive waste inventory being shipped. As NPI is aware, all radioactive waste specific to the manufacturing license generated prior to August 1999 is required to be shipped for disposal on or before August 2004. The plan also failed to describe the shipment schedule and protocol for the disposal of all contaminated soil in storage. . NPI has been in continuous violation of the above requirements since April 13, 1999 as upheld by the Maryland Court of Special Appeals Case No. 2338 filed September 19, 2001.

5. Section C.29(g)(2)titled Financial Assurance and Recordkeeping for Decommissioning" states that that no person shall receive, possess, use, transfer, own, or acquire radioactive material of a type described in paragraphs (a) and (b) of C.29 for more than 180 days following the dates prescribed in the section for submittal of a decommissioning funding plan or certification, if the decommissioning funding plan or certification has not been approved by the Agency. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license

> Contrary to the above, NPI continues to violate financial assurance requirements. NPI's submitted decommissioning funding plan is inadequate and has not been approved by the Agency. Failure to provide an adequate decommissioning funding plan and failure to commence required activities necessary to decommission the facility in a timely, safe and predictable manner, results in NPI remaining in continuous violation of this requirement since April 13, 1999.

6. Section C.31 titled, "Specific Terms and Conditions of Licenses" and License Condition 21(B) prohibits NPI from storing radioactive material waste generated after August 1999 in the main pool/canals for periods of time exceeding 4 years and radioactive material waste stored in areas other than the main pool/canals for periods

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of time exceeding 2 years. Neutron has refused, in an apparently willful manner, to ship for disposal the following containers of radioactive waste in accordance with licensed waste shipment requirements. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to ship the following radioactive waste by the required shipment due dates.

VIOLATION	TYPE OF WASTE	DATE GENERATED	SHIPMENT DUE DATE
A.	In-pool waste tubes	1/20/00	1/20/04
B.	Drum of metal & pumps	4/20/00	4/20/02
C.	Ruble & hot cell DAW	7/12/00	7/12/02
D.	HEPA filter	10/10/00	10/10/02
E.	DAW	4/20/01	4/20/03
F.	Box #3	4/28/01	4/28/03
G.	Box #88	4/20/01	4/20/03
H.	Box #90 DAW	4/28/01	4/28/03
I.	Box #SWRO5	6/6/01	6/6/03
J.	Box # 062298-2	6/6/01	6/6/03
K.	Box #110	6/6/01	6/6/03
L.	Box #FD-001 DAW	7/16/01	7/16/03
M.	Box #FD-002 DAW	7/16/01	7/16/03
N.	Resin from main pool	8/10/01	8/10/03
O.	Box # FD003 DAW	9/7/01	9/7/03
P.	Box # FD004 DAW	9/7/01	9/7/03
Q.	Box # FD005 DAW	10/10/01	10/10/03
R.	Box # FD006 DAW	11/30/01	11/30/03
S.	Box # FD007 DAW	11/30/01	11/30/03
T.	Box # FD008 DAW	11/30/01	11/30/03
U.	Contaminated soil	11/2000	11/2002

7. Section C.32 titled, "Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas" requires, in part, that each licensee begin decommissioning its site, buildings and outdoor areas in accordance with Agency requirements or submit a decommissioning plan within 12 months subsequent to when the licensee's right to operate has been terminated either by court action or by action of law or regulation. Section C.32(g)(1) requires a licensee to complete decommissioning as soon as practicable but no later than 24 months following the initiation of decommissioning. Section C.32(g) (2) requires the licensee to request license termination as soon as practicable but no later than 24 months following the initiation of decommissioning. MDE's right and obligation to enforce Section C.29 (g)(2) requirements was upheld by the Maryland Court of

Special Appeals in December 2001. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, NPI failed to submit a license termination plan and adequate decommissioning plan to the Department as required by paragraphs (f) and (g) of these regulations. Furthermore, NPI has not begun to decommission the site, buildings and outdoor areas as defined by these regulations.

8. COMAR 26.12.03.02 paragraph E titled, Annual Fees for Licenses to Possess or Use Radioactive Materials requires a person with a license to possess or use radioactive material, to pay to the Department an annual licensing fee in accordance with a fee schedule set forth in Regulation .03C of this chapter. The fee shall be paid on or before the first day of the month in which the anniversary of the license date occurs. Furthermore, the Montgomery County Circuit Court Order requires NPI to comply with all of the current requirements of the applicable statutes, regulations and the provisions of the license.

Contrary to the above, for the years 2003 and 2004, NPI failed to pay their annual licensing fee regarding the current storage and oversight of radioactive materials on premise pursuant to remaining activities conducted by NPI under the former MD-31-025-01 license. Although the Maryland Court of Special Appeal upheld all regulatory requirements associated with Section C.29 (g)(2), the payment of the annual fee is required by NPI until its manufacturing facility is fully decommissioned and the license is terminated in accordance with the criteria specified in Section C.32 titled, "Expiration and Termination of licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

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NUCLEAR REGULATORY COMMISSION

[Docket Nos: (Redacted), License Nos: (Redacted), EA–XX–XXX (Redacted)]

In the Matter of All Panoramic and Underwater Irradiators Authorized to Possess Greater than 370 TerraBecquerels (10,000 Curies) of Byproduct Material in the Form of Sealed Sources; Order Imposing Compensatory Measures (Effective Immediately)

I

The Licensees identified in Attachment 1 to this Order hold licenses issued in accordance with the Atomic Energy Act of 1954 and 10 CFR part 36 or comparable Agreement State regulations by the U.S. Nuclear Regulatory Commission (NRC or Commission) or an Agreement State authorizing possession of greater than 370 TerraBecquerels (TBq) [10,000 curies (Ci)] of byproduct material in the form of sealed sources either in panoramic irradiators that have dry or wet storage of the sealed sources or in underwater irradiators in which both the source and the product being irradiated are under water. Commission regulations at 10 CFR 20.1801 or equivalent Agreement State regulations, require Licensees to secure, from unauthorized removal or access, licensed materials that are stored in controlled or unrestricted areas. Commission regulations at 10 CFR 20.1802 or equivalent Agreement States regulations, require Licensees to control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

II

On September 11, 2001, terrorists simultaneously attacked targets in New York, NY, and Washington, DC, utilizing large commercial aircraft as weapons. In response to the attacks and intelligence information subsequently obtained, the Commission issued a number of Safeguards and Threat Advisories to its Licensees in order to strengthen Licensees' capabilities and readiness to respond to a potential attack on a nuclear facility. The Commission has also communicated with other Federal, State and local government agencies and industry representatives to discuss and evaluate the current threat environment in order to assess the adequacy of security measures at licensed facilities. In addition, the Commission has been conducting a review of its safeguards and security programs and requirements.

As a result of its consideration of current safeguards and license requirements, as well as a review of information provided by the intelligence community, the Commission has determined that certain compensatory measures are required to be implemented by Licensees as prudent, measures to address the current threat environment. Therefore, the Commission is imposing the requirements, as set forth in Attachment 2 on all Licensees identified in Attachment 1 of this Order [1] who currently possess, or have near term plans to possess, greater than 370 TBq (10,000 Ci) of byproduct material in the form of sealed sources. These

Category I
NPF
irradiators
All safeguard-modified
information specific
to NPI licenses ~~48~~
exclusively controlled by
NRC Region I

Although the additional security measures implemented by the Licensees in response to the Safeguards and Threat Advisories have been adequate to provide reasonable assurance of adequate protection of public health and safety, the Commission concludes that the security measures must be embodied in an Order consistent with the established regulatory framework. The security measures contained in Attachment 2 of this Order contain safeguards information and will not be released to the public. The Commission has broad statutory authority to protect and prohibit the unauthorized disclosure of safeguards information. Section 147 of the Atomic Energy Act of 1954, as amended, grants the Commission explicit authority to "issue such orders, as necessary to prohibit the unauthorized disclosure of safeguards information * * *." This authority extends to information concerning special nuclear material, source material, and byproduct material, as well as production and utilization facilities. Licensees must ensure proper handling and protection of safeguards information to avoid unauthorized disclosure in accordance with the specific requirements for the protection of safeguards information contained in Attachment 3. The Commission hereby provides notice that it intends to treat all violations of the requirements contained in Attachment 3, applicable to the handling and unauthorized disclosure of safeguards information as serious breaches of adequate protection

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adhere to the licensee's policies and procedures on safeguards information or develop, maintain and implement their own acceptable policies and procedures, but the licensees remain responsible for the conduct of their contractors. The policies and procedures necessary to ensure compliance with applicable requirements contained in Attachment 3 must address, at a minimum, the following: the general performance requirement that each person who produces, receives, or acquires Safeguards Information shall ensure that Safeguards Information is protected against unauthorized disclosure; protection of safeguards information at fixed sites, in use and in storage, and while in transit; inspections, audits and evaluations; correspondence containing safeguards information; access to safeguards information; preparation, marking, reproduction and destruction of documents; external transmission of documents; use of automatic data

[1] Attachment 1 contains OFFICIAL USE ONLY sensitive information and Attachment 2 contains SAFEGUARDS INFORMATION and will not be released to the public.

processing systems; and removal of the Safeguards Information category.

In order to provide assurance that the Licensees are implementing prudent measures to achieve a consistent level of protection to address the current threat environment, all Licensees who hold licenses issued by the U.S. Nuclear Regulatory Commission or an Agreement State authorizing possession greater than 370 TBq (10,000 Ci) of byproduct material in the form of sealed sources in a panoramic or underwater irradiator shall implement the requirements identified in Attachment 2 to this Order. In addition, pursuant to 10 CFR § 2.202, I find that in light of the common defense and security matters identified above, which warrant the issuance of this Order, the public health, safety and interest require that this Order be effective immediately.

III

Accordingly, pursuant to Sections 81, 161b, 161i, 161o, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 2.202, 10 CFR part 30, and 10 CFR part 36, *it is hereby ordered,* effective immediately, that all licensees identified in Attachment 1 to this order shall comply with the requirements of this order as follows:

A. All licensees shall, notwithstanding the provisions of any Commission or Agreement State regulation or license to the contrary, comply with the requirements described in Attachment 2 to this Order. The licensee shall immediately start implementation of the requirements in Attachment 2 to the Order and shall complete implementation by December 3, 2003 [180 days from date of this Order], or the first day that greater than 370 TBq (10,000 Ci) of byproduct material in the form of sealed sources is possessed, which ever is later.

B. 1. The Licensee shall, within twenty (20) days of the date of this Order, notify the Commission, (1) if it is unable to comply with any of the requirements described in Attachment 2, (2) if compliance with any of the requirements is unnecessary in its specific circumstances, or (3) if implementation of any of the requirements would cause the Licensee to be in violation of the provisions of any Commission or Agreement State regulation or its license. The notification shall provide the Licensee's justification for seeking relief from or variation of any specific requirement.

B. If the Licensee considers that implementation of any of the requirements described in Attachment 2 to this Order would adversely impact safe operation of the facility, the Licensee must notify the Commission, within twenty (20) days of this Order, of the adverse safety impact, the basis for its determination that the requirement has an adverse safety impact, and either a proposal for achieving the same objectives specified in the Attachment 2 requirement in question, or a schedule for modifying the facility to address the adverse safety condition. If neither approach is appropriate, the Licensee must supplement its response to Condition B.1 of this Order to identify the condition as a requirement with which it cannot comply, with attendant justifications as required in Condition B.1.

C. 1. The Licensee shall, within twenty (20) days of the date of this Order, submit to the Commission a schedule for completion of each requirement described in Attachment 2.

2. The Licensee shall report to the Commission when they have achieved full compliance with the requirements described in Attachment 2.

D. Notwithstanding any provisions of the Commission's or Agreement State's regulations to the contrary, all measures implemented or actions taken in response to this order shall be maintained until the Commission determines otherwise.

Licensee response to Conditions B.1, B.2, C.1, and C.2 above shall be submitted to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. In addition, Licensee submittals that contain specific physical protection or security information considered to be safeguards information shall be put in a separate enclosure or attachment and, marked as "SAFEGUARDS INFORMATION—MODIFIED HANDLING" and mailed (no electronic transmittals *i.e.*, no e-mail or FAX) to the NRC in accordance with Attachment 3.

The Director, Office of Nuclear Material Safety and Safeguards, may, in writing, relax or rescind any of the above conditions upon demonstration by the Licensee of good cause.

IV

In accordance with 10 CFR 2.202, the Licensee must, and any other person adversely affected by this Order may, submit an answer to this Order, and may request a hearing on this Order, within twenty (20) days of the date of this Order. Where good cause is shown, consideration will be given to extending the time to request a hearing. A request for extension of time in which to submit an answer or request a hearing must be made in writing to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and include a statement of good cause for the extension. The answer may consent to this Order. Unless the answer consents to this Order, the answer shall, in writing and under oath or affirmation, specifically set forth the matters of fact and law on which the Licensee or other person adversely affected relies and the reasons as to why the Order should not have been issued. Any answer or request for a hearing shall be submitted to the Secretary, Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, ATTN: Rulemakings and Adjudications Staff, Washington, DC 20555–0001. Copies also shall be sent to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, to the Assistant General Counsel for Materials Litigation and Enforcement at the same address, and to the Licensee if the answer or hearing request is by a person other than the Licensee. Because of possible disruptions in delivery of mail to United States Government offices, it is requested that answers and requests for hearing be transmitted to the Secretary of the Commission either by means of facsimile transmission to (301) 415–1101 or by e-mail to *hearingdocket@nrc.gov* and also to the Office of the General Counsel either by means of facsimile transmission to (301) 415–3725 or by e-mail to *OGCMailCenter@nrc.gov*. If a person other than the Licensee requests a hearing, that person shall set forth with particularity the manner in which his interest is adversely affected by this Order and shall address the criteria set forth in 10 CFR 2.714(d).

If a hearing is requested by the Licensee or a person whose interest is adversely affected, the Commission will issue an Order designating the time and place of any hearing. If a hearing is held, the issue to be considered at such hearing shall be whether this Order should be sustained.

Pursuant to 10 CFR 2.202(c)(2)(i), the Licensee may, in addition to demanding a hearing, at the time the answer is filed or sooner, move the presiding officer to set aside the immediate effectiveness of the Order on the ground that the Order, including the need for immediate effectiveness, is not based on adequate evidence but on mere suspicion, unfounded allegations, or error.

In the absence of any request for hearing, or written approval of an extension of time in which to request a

hearing, the provisions specified in Section III above shall be final twenty (20) days from the date of this Order without further order or proceedings. If an extension of time for requesting a hearing has been approved, the provisions specified in Section III shall be final when the extension expires if a hearing request has not been received. An answer or a request for hearing shall not stay the immediate effectiveness of this order.

Dated this 6th day of June, 2003.

For the Nuclear Regulatory Commission

Margaret V. Federline,

Deputy Director, Office of Nuclear Material Safety and Safeguards.

Attachments 1 and 2—Redacted

Attachment 3—Modified Handling Requirements for the Protection of Certain Safeguards Information (SGI–M)

General Requirement

Information and material that the U.S. Nuclear Regulatory Commission (NRC) determines are safeguards information must be protected from unauthorized disclosure. In order to distinguish information needing modified protection requirements from the safeguards information for reactors and fuel cycle facilities that require a higher level of protection, the term "Safeguards Information-Modified Handling" (SGI–M) is being used as the distinguishing marking for certain materials licensees. Each person who produces, receives, or acquires SGI–M shall ensure that it is protected against unauthorized disclosure. To meet this requirement, licensees and persons shall establish and maintain an information protection system that includes the measures specified below. Information protection procedures employed by state and local police forces are deemed to meet these requirements.

Persons Subject to These Requirements

Any person, whether or not a licensee of the NRC, who produces, receives, or acquires SGI–M is subject to the requirements (and sanctions) of this document. Firms and their employees that supply services or equipment to materials licensees would fall under this requirement if they possess facility SGI-M. A licensee must inform contractors and suppliers of the existence of these requirements and the need for proper protection. (*See* more under Conditions for Access.)

State or local police units who have access to SGI-M are also subject to these requirements. However, these organizations are deemed to have adequate information protection systems. The conditions for transfer of information to a third party, *i.e.*, need-to-know, would still apply to the police organization as would sanctions for unlawful disclosure. Again, it would be prudent for licensees who have arrangements with local police to advise them of the existence of these requirements.

Criminal and Civil Sanctions

The Atomic Energy Act of 1954, as amended, explicitly provides that any person, "whether or not a licensee of the Commission, who violates any regulations adopted under this section shall be subject to the civil monetary penalties of section 234 of this Act." Section 147a. of the Act. Furthermore, willful violation of any regulation or order governing safeguards information is a felony subject to criminal penalties in the form of fines or imprisonment, or both. (*See* sections 147b. and 223 of the Act.)

Conditions for Access

Access to SGI–M beyond the initial recipients of the order will be governed by the background check requirements imposed by the order. Access to SGI–M by licensee employees, agents, or contractors must include both an appropriate need-to-know determination by the licensee, as well as a determination concerning the trustworthiness of individuals having access to the information. Employees of an organization affiliated with the licensee's company, *e.g.*, a parent company, may be considered as employees of the licensee for access purposes.

Need-to-Know

Need-to-know is defined as a determination by a person having responsibility for protecting SGI–M that a proposed recipient's access to SGI–M is necessary in the performance of official, contractual, or licensee duties of employment. The recipient should be made aware that the information is SGI–M and those having access to it are subject to these requirements as well as criminal and civil sanctions for mishandling the information.

Occupational Groups

Dissemination of SGI–M is limited to individuals who have an established need-to-know and who are members of certain occupational groups. These occupational groups are:

1. An employee, agent, or contractor of an applicant, a licensee, the Commission, or the United States Government;

2. A member of a duly authorized committee of the Congress;

3. The Governor of a State or his designated representative;

4. A representative of the International Atomic Energy Agency (IAEA) engaged in activities associated with the US/IAEA Safeguards Agreement who has been certified by the NRC;

5. A member of a state or local law enforcement authority that is responsible for responding to requests for assistance during safeguards emergencies;

6. A person to whom disclosure is ordered pursuant to 10 CFR 2.744(e); or

7. State Radiation Control Program Directors (and State Homeland Security Directors) or their designees.

In a generic sense, the individuals described above in (II) through (VII) are considered to be trustworthy by virtue of their employment status. For non-governmental individuals in group (1) above, a determination of reliability and trustworthiness is required. Discretion must be exercised in granting access to these individuals. If there is any indication that the recipient would be unwilling or unable to provide proper protection for the SGI–M, they are not authorized to receive SGI–M.

Information Considered for Safeguards Information Designation

Information deemed SGI–M is information the disclosure of which could reasonably be expected to have a significant adverse effect on the health and safety of the public or the common defense and security by significantly increasing the likelihood of theft, diversion, or sabotage of materials or facilities subject to NRC jurisdiction. SGI–M identifies safeguards information which is subject to these requirements. These requirements are necessary in order to protect quantities of nuclear material significant to the health and safety of the public or common defense and security.

The overall measure for consideration of SGI–M is the usefulness of the information (security or otherwise) to an adversary in planning or attempting a malevolent act. The specificity of the information increases the likelihood that it will be useful to an adversary.

Protection While in Use

While in use, SGI–M shall be under the control of an authorized individual. This requirement is satisfied if the SGI–M is attended by an authorized individual even though the information is in fact not constantly being used. SGI–M, therefore, within alarm stations, continuously manned guard posts or

ready rooms need not be locked in file drawers or storage containers.

Under certain conditions the general control exercised over security zones or areas would be considered to meet this requirement. The primary consideration is limiting access to those who have a need-to-know. Some examples would be:

Alarm stations, guard posts and guard ready rooms;

Engineering or drafting areas if visitors are escorted and information is not clearly visible;

Plant maintenance areas if access is restricted and information is not clearly visible; and

Administrative offices (*e.g.*, central records or purchasing) if visitors are escorted and information is not clearly visible.

Protection While in Storage

While unattended, SGI–M shall be stored in a locked file drawer or container. Knowledge of lock combinations or access to keys protecting SGI–M shall be limited to a minimum number of personnel for operating purposes who have a "need-to-know" and are otherwise authorized access to SGI–M in accordance with these requirements. Access to lock combinations or keys shall be strictly controlled so as to prevent disclosure to an unauthorized individual.

Transportation of Documents and Other Matter

Documents containing SGI–M when transmitted outside an authorized place of use or storage shall be enclosed in two sealed envelopes or wrappers. The inner envelope or wrapper shall contain the name and address of the intended recipient, and be marked both sides, top and bottom with the words "Safeguards Information—Modified Handling." The outer envelope or wrapper must be addressed to the intended recipient, must contain the address of the sender, and must not bear any markings or indication that the document contains SGI–M.

SGI–M may be transported by any commercial delivery company that provides nation-wide overnight service with computer tracking features, U.S. first class, registered, express, or certified mail, or by any individual authorized access pursuant to these requirements.

Within a facility, SGI–M may be transmitted using a single opaque envelope. It may also be transmitted within a facility without single or double wrapping, provided adequate measures are taken to protect the material against unauthorized disclosure. Individuals transporting SGI–M should retain the documents in their personal possession at all times or ensure that the information is appropriately wrapped and also secured to preclude compromise by an unauthorized individual.

Preparation and Marking of Documents

While the NRC is the sole authority for determining what specific information may be designated as "SGI–M," originators of documents are responsible for determining whether those documents contain such information. Each document or other matter that contains SGI–M shall be marked "Safeguards Information—Modified Handling" in a conspicuous manner on the top and bottom of the first page to indicate the presence of protected information. The first page of the document must also contain (i) the name, title, and organization of the individual authorized to make a SGI–M determination, and who has determined that the document contains SGI–M, (ii) the date the document was originated or the determination made, (iii) an indication that the document contains SGI–M, and (iv) an indication that unauthorized disclosure would be subject to civil and criminal sanctions. Each additional page shall be marked in a conspicuous fashion at the top and bottom with letters denoting "Safeguards Information—Modified Handling."

In additional to the "Safeguards Information—Modified Handling" markings at the top and bottom of page, transmittal letters or memoranda which do not in themselves contain SGI–M shall be marked to indicate that attachments or enclosures contain SGI–M but that the transmittal does not (*e.g.*, "When separated from SGI–M enclosure(s), this document is decontrolled").

In addition to the information required on the face of the document, each item of correspondence that contains SGI–M shall, by marking or other means, clearly indicate which portions (*e.g.*, paragraphs, pages, or appendices) contain SGI–M and which do not. Portion marking is not required for physical security and safeguards contingency plans.

All documents or other matter containing SGI–M in use or storage shall be marked in accordance with these requirements. A specific exception is provided for documents in the possession of contractors and agents of licensees that were produced more than one year prior to the effective date of the order. Such documents need not be marked unless they are removed from file drawers or containers. The same exception applies to old documents stored away from the facility in central files or corporation headquarters.

Since information protection procedures employed by state and local police forces are deemed to meet NRC requirements, documents in the possession of these agencies need not be marked as set forth in this document.

Removal From SGI–M Category

Documents containing SGI–M shall be removed from the SGI–M category (decontrolled) only after the NRC determines that the information no longer meets the criteria of SGI–M. Licensees have the authority to make determinations that specific documents which they created no longer contain SGI–M information and may be decontrolled. Consideration must be exercised to ensure that any document decontrolled shall not disclose SGI–M in some other form or be combined with other unprotected information to disclose SGI–M. The authority to determine that a document may be decontrolled may be exercised only by, or with the permission of, the individual (or office) who made the original determination. The document should indicate the name and organization of the individual removing the document from the SGI–M category and the date of the removal. Other persons who have the document in their possession should be notified of the decontrolling of the document.

Reproduction of Matter Containing SGI–M

SGI–M may be reproduced to the minimum extent necessary consistent with need without permission of the originator. Newer digital copiers which scan and retain images of documents represent a potential security concern. If the copier is retaining SGI–M information in memory, the copier cannot be connected to a network. It should also be placed in a location that is cleared and controlled for the authorized processing of SGI–M information. Different copiers have different capabilities, including some which come with features that allow the memory to be erased. Each copier would have to be examined from a physical security perspective.

Use of Automatic Data Processing (ADP) Systems

SGI–M may be processed or produced on an ADP system provided that the system is assigned to the licensee's or contractor's facility and requires the use of an entry code/password for access to stored information. Licensees are

encouraged to process this information in a computing environment that has adequate computer security controls in place to prevent unauthorized access to the information. An ADP system is defined here as a data processing system having the capability of long term storage of SGI–M. Word processors such as typewriters are not subject to the requirements as long as they do not transmit information off-site. (**Note:** if SGI–M is produced on a typewriter, the ribbon must be removed and stored in the same manner as other SGI–M information or media.) The basic objective of these restrictions is to prevent access and retrieval of stored SGI–M by unauthorized individuals, particularly from remote terminals. Specific files containing SGI–M will be password protected to preclude access by an unauthorized individual. The National Institute of Standards and Technology (NIST) maintains a listing of all validated encryption systems at *http://csrc.nist.gov/cryptval/140-1/1401val.htm*. SGI–M files may be transmitted over a network if the file is encrypted. In such cases, the licensee will select a commercially available encryption system that NIST has validated as conforming to Federal Information Processing Standards (FIPS). SGI–M files shall be properly labeled as "Safeguards Information-Modified Handling" and saved to removable media and stored in a locked file drawer or cabinet.

Telecommunications

SGI–M may not be transmitted by unprotected telecommunications circuits except under emergency or extraordinary conditions. For the purpose of this requirement, emergency or extraordinary conditions are defined as any circumstances that require immediate communications in order to report, summon assistance for, or respond to a security event (or an event that has potential security significance).

This restriction applies to telephone, telegraph, teletype, facsimile circuits, and to radio. Routine telephone or radio transmission between site security personnel, or between the site and local police, should be limited to message formats or codes that do not disclose facility security features or response procedures. Similarly, call-ins during transport should not disclose information useful to a potential adversary. Infrequent or non-repetitive telephone conversations regarding a physical security plan or program are permitted provided that the discussion is general in nature.

Individuals should use care when discussing SGI–M at meetings or in the presence of others to insure that the conversation is not overheard by persons not authorized access. Transcripts, tapes or minutes of meetings or hearings that contain SGI–M should be marked and protected in accordance with these requirements.

Destruction

Documents containing SGI–M should be destroyed when no longer needed. They may be destroyed by tearing into small pieces, burning, shredding or any other method that precludes reconstruction by means available to the public at large. Piece sizes one half inch or smaller composed of several pages or documents and thoroughly mixed would be considered completely destroyed.

[FR Doc. 03–14961 Filed 6–12–03; 8:45 am]
BILLING CODE 7590–01–P

PENSION BENEFIT GUARANTY CORPORATION

Pendency of Request for Approval of a Second Amendment to Special Withdrawal Liability Rules for International Longshoremen's and Warehousemen's Union-Pacific Maritime Association Pension Plan

AGENCY: Pension Benefit Guaranty Corporation.

ACTION: Notice of pendency of request.

SUMMARY: The International Longshoremen's and Warehousemen's Union-Pacific Maritime Association Pension Plan has asked the Pension Benefit Guaranty Corporation ("PBGC") to review and approve a second amendment to a special withdrawal liability rule that PBGC approved in initial and amended form in 1984 and 1998. See Approval of Special Withdrawal Liability Rules ("Notice of Approval"), 49 FR 6043 (February 16, 1984) and Notice of Approval at 63 FR 27774 (May 20, 1998). Under section 4203(f) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), PBGC may prescribe regulations under which plans in industries other than the construction or entertainment industries may be amended to provide for special withdrawal liability rules, and PBGC has prescribed such regulations at 29 CFR Part 4203. The regulations provide that PBGC approval is required for a plan amendment establishing special withdrawal liability rules, as well any modification to a previously approved plan amendment. This notice describes the amendment and invites any interested person to submit written comments about it to PBGC.

DATES: Comments must be submitted on or before July 28, 2003.

ADDRESSES: Comments may be mailed to the Office of the General Counsel, Pension Benefit Guaranty Corporation, 1200 K Street, NW., Washington, DC 20005–4026, or delivered to Suite 340 at the same address. Comments also may be sent by Internet e-mail to *reg.comments@pbgc.gov*. The PBGC will make the comments received available on its Web site, *http://www.pbgc.gov*. Copies of the comments and the request for approval may be obtained by writing the PBGC's Communications and Public Affairs Department (CPAD) at Suite 240 at the above address or by visiting or calling CPAD during normal business hours (202–325–4040).

FOR FURTHER INFORMATION CONTACT: Gennice D. Brickhouse, Office of the General Counsel, Pension Benefit Guaranty Corporation, 1200 K Street, NW., Washington, DC 20005–4026; 202–326–4020. (For TTY/TDD users, call the Federal Relay Service toll-free at 1–800–877–8339 and ask to be connected to 202–326–4020).

SUPPLEMENTARY INFORMATION:

Background

Under section 4201 of ERISA, an employer that withdraws from a multiemployer pension plan incurs liability for a share of the plan's unfunded vested benefits. Section 4203(a) of ERISA provides that a complete withdrawal from a multiemployer plan occurs if an employer either (1) Permanently ceases to have an obligation to contribute under the plan; or (2) permanently ceases all covered operations under the plan. Section 4205(a)(2) of ERISA states that a partial withdrawal occurs if an employer either: (1) Permanently ceases to have an obligation to contribute under one or more but fewer than all collective bargaining agreements under which the employer has been obligated to contribute under the plan, while continuing to perform work in the jurisdiction of the collective bargaining agreement of the type for which contributions were previously required or transfers such work to another location; or (2) permanently ceases to have an obligation to contribute under the plan for work performed at one or more but fewer than all of its facilities, while continuing to perform work at the facility of the type for which the obligation to contribute ceased. Under section 4205(a)(1), a partial withdrawal will also occur if the employer reduces its contribution base units—the factors

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: NPI INC. COLLECTOR: A. JACOBSON SAMPLE TYPE: SOIL

COLLECTION DATE: 4/30/97 RECEIPT DATE: 5/2/97 REPORT DATE: 5/22/97 ANALYSES BY: S. WISE
S. Wise

Activity (pCi/gram)

LAB. NO.	Co-60	COMMENT
1852	23 ± 6	Railroad property by train station
1853	8.6 ± 0.6	Railroad property - break in pipe
1854	< 0.07	Creek Bed 30 feet From Pipe
1855	0.18 ± 0.06	Creek Bed 40 feet From Pipe
1856	56 ± 2	Dry Pond - culvert
1857	19 ± 2	Dry Pond
1858	1800 ± 100	Courtyard leaf/soil (wet)

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MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
410-767-5537

MPLE SOURCE: NPI INC. COLLECTOR: A. JACOBSON SAMPLE TYPE: WIPE

LLECTION DATE: 4/30/97 RECEIPT DATE: 5/2/97 REPORT DATE: 5/9/97 ANALYSES BY: S. WISE

Activity (x 10E-06 μCi/wipe)

B. NO.	WIPE NO.	GROSS ALPHA	GROSS BETA	Co-60	COMMENT
47	1	1 ± 1	2 ± 1	< 5	DESK TOP
48	2	< 1	< 2	< 5	MANIPULATOR (RIGHT)
49	3	< 1	25 ± 3	35 ± 6	STAIRS
50	4	< 1	39 ± 4	78 ± 11	STEP TO LOCKER ROOM
51	5	< 1	20 ± 3	35 ± 10	COUNTER TOP

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
410-767-5537

SAMPLE SOURCE: NPI INC. COLLECTOR: A. JACOBSON SAMPLE TYPE: WATER

COLLECTION DATE: 4/30/97 RECEIPT DATE: 5/2/97 REPORT DATE: 5/9/97 ANALYSES BY: S. WISE

Activity (μCi/liter)

LAB. NO.	CONTAINER NO.	Co-60
1859	NC 1	1.24 ± 0.04 x 10E-01
1860	MP	6.3 ± 0.1 x 10E-01

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RADIOLOGICAL HEALTH PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway
Baltimore, Maryland 21224
(410) 631-3302

RADIOACTIVE MATERIALS INSPECTION REPORT

Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, MD 20842

License Number: MD-31-025-01

Phone Number: (301) 349-5001
FAX Number: (301) 349-5007

Introduction:

On March 25, March 26 and April 2, 1998, Messrs. Bob Nelson, Ray Manley, Ms. Donna Thim and I conducted a routine unannounced radioactive materials inspection at NPI's Dickerson facility. The inspection examined radiation safety, compliance with conditions of the above referenced license, adherence to procedures, proper maintenance of records, interviews with personnel, general observations and independent measurements. Five items of noncompliance and two issues of concern were identified. These findings were discussed with Messrs. Jackson Ransohoff, Jeffrey Williams and Michael Repp at the licensee management exit interview which was held on April 9, 1998. These findings will also be described in a Departmental Letter-Notice of Violation.

Program:

This license authorizes NPI to possesses a maximum of 3,000,000 Curies of cobalt-60 for the manufacturing of special form sealed sources, removal of encapsulation and melting of unsealed cobalt-60 to fabricate teletherapy sources. The licensee stated that for one day during the month of March 1998 they possessed 1,950,000 Curies which is the highest activity ever documented on the "01" license. NPI employs 60 persons at the Dickerson plant and also maintains three other Maryland radioactive materials licenses as described below:

MD-31-025-03	Installation and Service of Teletherapy Sources
MD-31-025-04	Dickerson II Pool Irradiator
MD-31-025-05	Dickerson I Pool Irradiator

Purpose And Scope:

The purpose of the inspection was to examine the licensee's use and control of radioactive material relative to Maryland radiation protection regulations and specific license conditions. The inspection staff implemented a performance based inspection plan which emphasized the achievement of quality in all facets of inspected operations.

Interviews:

Interviews were conducted with the following employees:

Jackson Ransohoff	President
Jeffrey Williams	Radiation Safety Officer
Michael Repp	Health Physicist
Jeffrey Corun	Hot Cell Manager
Joe Weedon	Manager-Limited Access Area (LAA)
Kathy Bupp	Health Physics Technician

Specific Areas of Review:

The following areas were inspected and reviewed: Dosimetry, Random Inspection Program, Quarterly Audits, Radiation Safety Committee Activities, Respiratory Protection Program, Inventory of Radioactive Materials, Daily Implementation of the Radiation Safety Program, General Operations in the LAA, Decommissioning Recordkeeping, Boundary Monitoring Program, One Kilometer Surveys, Shipping and Receiving (Cobalt-60), Cobalt-60 in Soil, Floor Monitoring, Health Physics Monthly Reports, Disposals, Training, Air Monitoring, Survey Meter Calibration, Water Monitoring, Emergency Generator Use and Operations, Status of Building Permit Application, Annual Reports and previous violations.

Results:

1. Monthly Audits **VIOLATION**

The Inspection Team reviewed records of monthly audits for the year of 1997 and year to date 1998. Several were missing. At the exit interview, NPI acknowledged that they did not conduct audits for the months of April 1997, July, 1997 and January, 1998. Furthermore, NPI management did not review the monthly audits at the required quarterly frequency. On October 31, 1997, NPI reviewed the monthly audits from August 1996 to October 1997. NPI management did not review the monthly audits for November 1997 and December 1997. This is a repeat violation from the April 1997 inspection. In NPI's Response Letter dated July 16, 1997 (which responded to violations and concerns identified during the 4/97 inspection), Mr. Williams indicated that they were in compliance with these requirements; however, they are still in violation.

2. Cobalt-60 Soil Concentration **VIOLATION**

NPI has still not removed contaminated soil from the adjacent railroad property to establish compliance with soil concentration limits describe in Condition 13.N. (Amendment 33). The Stipulation and Settlement (Civil Case No. 76639 in the Circuit Court for Montgomery County) dated January 3, 1994 required NPI to clean contaminated soils by June 15, 1994. NPI has missed this deadline and is refusing to remediate this property. Furthermore, NPI is refusing to inform this property owner regarding the cobalt-60 contamination that was released from their Dickerson facility. This is a repeat and ongoing violation.

3. Storage and Control of Licensed Radioactive Material **VIOLATION**

On April 2, 1998, I observed an unlocked Sea Land Container in NPI's parking lot. The

door to this container was open and it was not under surveillance. Mr. Repp and I inspected the contents of the container and identified Depleted Uranium which is possessed under NPI's MD-31-025-03 Radioactive Materials License. Specifically, we identified a "Picker Wheel" and a "Shield for a TEM Head". I informed NPI personnel that this was a violation of Section D. 801. titled "Security of Stored Sources of Radiation". The Depleted Uranium was not secured against unauthorized removal or access from the place of storage. Afterwards, I instructed NPI personnel to lock the Sea Land container and they did. On April 9, 1998 when I arrived at NPI for the exit interview, I found the Sea Land container unlocked. The door was open and the Depleted Uranium was not under surveillance. The door to the Sea Land container did not have a Caution-Radioactive Materials Sign on it and it was not identified as a restricted area. Section D. 802 titled, "Control of Sources of Radiation not in Storage", requires the licensee to control and maintain constant surveillance of licensed radioactive material that is in an unrestricted area. In addition, two TEM rings (which were found stored in the sea land container) contained approximately 17.0 kilograms of Depleted Uranium each and were not identified on the Depleted Uranium Inventory record.

4. Labeling Containers **VIOLATION**

On April 2 and April 9, 1998, I observed Depleted Uranium (which is possessed under NPI's MD-031-025-03 license) stored in the Sea Land Container in NPI' parking lot. The Sea Land Container, the box inside and the actual teletherapy parts which contained Depleted Uranium did not bear labels with the words, "Caution, Radioactive Material" or "Danger, Radioactive Material". At the exit interview, Messrs. Repp and Williams stated that they were certain that they are exempt from labeling requirements. I handed them a copy of the State Regulations, they reviewed it and could not identify an exemption which applied.

5. Recordkeeping for Decommissioning **VIOLATION**

The licensee's records of information important to safe and effective decommissioning of the facility were incomplete, missing, lost and/or not available for inspection. This is a repeat violation from the April 1997 Departmental Inspection. Specifically, records of spills, leaks, and other occurrences involving the spread of radioactive material in and around the facility were still not available for inspection by the Agency. The only records NPI could produce was records regarding the leaks in the canal and the main pool. Records involving the location of inaccessible radioactive contamination such as buried pipes and soil were still not available for inspection. In NPI's Response Letter date July 16, 1997, Mr. Williams stated that they were in substantial compliance with Section C.29(f) however they are still in violation. During the exit interview, Mr. Ransohoff talked at length about the volume, activity and location of approximately 2000 cubic feet of contaminated soil used as fill during construction which occurred from 1981 to 1983; however, there were no records available for inspection. In addition, NPI still cannot produce any records regarding buried contaminated drains and cobalt-60 soil concentrations of a partially remediated hole in the LAA. Current records regarding cobalt-60 soil concentration of the adjacent railroad property and other areas down grade were also not available for inspection.

6. Procedure For Exit From The LAA **ISSUE OF CONCERN**

On March 26, 1998, RHP Inspectors had completed the inspection of the LAA when Mr. Williams identified radioactive contamination on his left arm. Mr. Williams experienced

difficulty in decontaminating this area. At this time, a portal monitor technician was not available to operate the Helgeson Mini HECM Gas Proportional Booth Monitor. Mr. Williams walked passed the monitor twice while he was contaminated with cobalt-60 without "counting out". The first time, he walked passed the Booth Monitor so he could operate the Monitor's controls while Mr. Nelson was "counting out". The second time, a portal monitor technician was available however Mr. Williams again walked passed the Booth Monitor to obtain a scouring pad to remove the contamination from his shoulder. Afterwards, when Mr. Williams finally "counted out" in the Booth Monitor, he tripped the alarm which indicated that there still was contamination on his shoulder. Mr. Williams claims that this is not a violation because he never actually left the LAA without "counting out". It is the RHP's position that no person should ever physically pass the monitor prior to "counting out" and being free of cobalt-60 contamination. Upon further review, it was determined that NPI modified the procedure regarding "Exiting the LAA" on April 1, 1993 with out notification or permission from the RHP. This modified procedure allows a contaminated employee to bypass the Booth Monitor and operate it's controls as long as he remains in the LAA. Neither procedure is incorporated into the license or "tied down" by amendment. The RHP Inspection Staff considers this to be a poor health physics practice.

7. Survey Meter Calibration **ISSUE OF CONCERN**

NPI personnel could not demonstrate National Institute of Standards and Technology (NIST) traceability of their calibrator source (Cobalt-60, M-498, 6.10 mCi) which they use to calibrate 65 of their survey meters and 46 of their self reading dosimeters. No traceability or certification records were available for inspection. NPI's procedure for calibrating survey meters requires the source to be NIST traceable; however, this procedure is not "tied down" to the license by amendment. At the exit interview, NPI still could not explain or demonstrate how they know that their calibration procedure is accurate and NIST traceable.

8. Respiratory Protection Program **RECOMMENDATIONS**

The Inspection Team conducted a review of NPI's Respiratory Protection Program. I discussed their Respiratory Protection Program with Ms. Mardel Knight, a Certified Industrial Hygienist at MDE. Ms. Knight provided the following recommendations i presented to NPI management at the exit interview:

a. NPI should conduct an annual review of their respiratory protection program

b. NPI's written Respiratory Protection Program needs more detail such as quantity and types of respirators, model number of respirators, serial numbers of respirators, type of fit testing which is conducted, names of service contractors, and names of the emergency responders.

c. A log should be kept which documents the "30 day checks" of each respirator.

d. The SCBAs need to be checked within the 30 day frequency.

e. Each Emergency Responder is required to pass the medical examination within a 12 month frequency and the new forms must be maintained for inspection.

Licensee Management Exit Interview

The licensee management exit interview was held on April 9, 1998 at NPI. Messrs. Nelson, Repp, Ransohoff, Williams and I attended the exit interview and we discussed the

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results of the inspection. Mr. Ransohoff disagreed with all of the violations found. Messrs. Williams, Repp and Ransohoff also disagreed with the Issue of Concern regarding the Procedure For Exit From The LAA. Messrs. Repp and Ransohoff stated that the recommendations regarding their Respiratory Protection Program were reasonable and would be implemented prior to the next melting campaign when respiratory protection will be necessary. Messrs. Ransohoff and Repp also agreed with the Issue Of Concern regarding Survey Meter Calibration. Mr. Repp stated that they would demonstrate NIST traceability within one week. We also discussed other issues including training of visitors who enter the LAA, dose to members of the general public for 1997, Sediment and Stormwater Management application, MNCPPC application, ALARA and the Maryland Radiation Control Advisory Board's future tour of NPI's Dickerson plant.

During the exit interview, Mr. Ransohoff also made the following comments:

1. Mr. Ransohoff stated that Depleted Uranium does not need to be secured against unauthorized removal from place of storage because he is entitled to a general license and nobody locks up general licensed material. He also stated that he resolved this issue years ago. He went on to state that Cobalt-60 exists in cosmic dust from meteors and he recently saw one near the plant. Mr. Ransohoff stated that as a result, he was concerned about the accuracy of his environmental monitoring.

2. Mr. Ransohoff offered Mr. Nelson and I tickets to the Washington Wizards Basketball game on April 9, 1998 at the MCI Center in Washington D.C. and we declined. He asked again if we wanted to go to the game, he held an envelope up in the air and stated that he had extra tickets. Again, we declined and he tossed this envelope on the table.

3. Mr. Ransohoff asked if Mr. Nelson and I could change the soil concentration limits described in Amendment 33 to levels which would put NPI in compliance. I stated that I could not do that and showed him a copy of the Stipulation and Settlement. I pointed out paragraph 13 which describes the agreement to clean contaminated soils to Amendment 33 criteria by June 15, 1994. NPI has failed to meet this deadline because they never cleaned up the adjacent railroad property to concentrations below 8 picocuries per gram. In addition, they never notified the property owner regarding the contaminated soil.

4. Mr. Ransohoff stated that he does not have to comply with the soil concentration limits described in Amendment 33 and the June 15, 1994 deadline for clean up of contaminated soils because he has an oral agreement with Judge Pincus which supersedes the Stipulation and Settlement of January 3, 1994.

5. Furthermore, he stated that he is not required to comply with the terms and conditions of the Stipulation and Settlement because MDE dropped the law suit against NPI and he won. I disagreed and showed him paragraph 11 of the Stipulation and Settlement which describes the $75,000 payment plan. I informed Mr. Ransohoff that he is required to comply and that is why NPI is paying $10,000 a year in fines. Mr. Ransohoff stated repeatedly that it is not a fine. He told me never to call it a fine again. He told me that if I ever called it a fine again that he was going to shoot me. He stated again that this is not a fine. He told me that this is very serious. He leaned over towards me and again told me that if I ever called it a fine again that

he was going to shoot me. Mr. Ransohoff then said that if I ever called it a fine, he would terminate me.

At the conclusion of the exit interview, Mr. Ransohoff and I signed the Radioactive Material Inspection Findings and Licensee Acknowledgement Form (MDER E-1) which indicates that a letter will be sent to NPI describing Agency requirements and that corrective actions must be immediately initiated for the violations identified during the inspection.

Miscellaneous Notes:

NPI has still not obtained the permits necessary to begin construction of the courtyard enclosure. Specifically, NPI has not even applied to the Montgomery County Department for Sediment Control and Stormwater Management for a required permit. At the exit interview, Mr. Ransohoff explained that it is not his fault. He stated that he has not applied for the permit because there is a property line dispute and "county red tape". NPI plans to melt 400,000 to 500,000 curies of cobalt as soon as this application is accepted. NPI has still not obtained the permit necessary to install the fire suppression system required for the two pool irradiators.

The Inspection Team reviewed Dosimetry records for the year of 1997. One employee received over 2.0 REM (2098 mRem) and six employees received over 1.0 REM. The occupational doses for the year of 1997 were substantially lower than previous years. There was no melt or hot cell clean up in 1997. The highest extremity exposure for 1997 was 4.283 REM.

The results of the boundary monitoring program were reviewed and determined to be incompliance with the 500 mRem per year limit at all locations. Monitors have been move inside the fence to prevent theft and tampering. The highest result was 456.9 mRem for the year at the 2019 Dry Pond location. Background was measured to be 68.2 mRem at the Lytle Storage Facility.

On March 26, 1998, Mr. Nelson and I inspected the LAA. We interviewed Messrs. Corun and Weedon. We verified the physical location of Cobalt-60 and Depleted Uranuim as identified on the inventory records. Mr. Weedon demonstrated and explained procedures regarding daily checks, weekly checks, air monitoring, water monitoring and survey meter calibration.

For the year of 1997, the average release to WSSC was 1.4 E-5 uCi/ml. No monthly average exceeded 3.0 E-5 uCi/ml. The total activity which was dumped was 13.9 mCi or approximately 1.4% of the 1.0 Curie limit.

On 2/16/98, NPI shipped 100 cubic feet, 524 pounds, 36.0 mCi of dry solid radioactive waste (which was removed from the waste storage) to Barnwell, South Carolina for disposal.

The Inspection Team reviewed NPI's One Kilometer Surveys for the year of 1997. NPI personnel surveyed 54 acres and found seven cobalt-60 particles in the Dickerson community.

On March 26, 1998 Mr. Manley and Ms. Thim conducted a radiological survey of two residential properties near the plant. No radioactive particles were found.

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On September 19, 1997, the NPI Health Physicist changed the HEPA filter in the Hot Cell. The HEPA filter is usually replaced every one or two years. Currently NPI has 9 used HEPA filters in storage for decay because they are too hot to ship for disposal. The dose rates at contact with these used HEPA filters range from 2.0 R/hr to 9.0 R/hr.

Inspectors reviewed the Emergency Generator Log for the year of 1997 and year to date 1998. The generator is tested each week and automatically turns on during power failures. This generator only powers the Hot Cell exhaust fan and emergency lighting in the LAA.

The Inspection Team collected soil and water samples which were analyzed by the Maryland Laboratory Administration. Results are attached.

Independent Physical Measurements:

A dose rate survey was conducted using a Ludlum model 14-C, SN 141948 which was calibrated on October 3, 1997 by Ludlum.

Measured:

5.0 mR/hr	door by shoe rack in LAA
10.0 mr/hr	main pool, 1 meter above surface
40.0 mR/hr	south canal, 1 meter above surface
10.0 mR/hr	north canal, 1 meter above surface
25.0 mR/hr	door to the HEPA filter storage room
0.5 mR/hr	at contact with the Hot Cell window
5.0 mR/hr	radiation area signs and ropes in the courtyard of the LAA

Attachments:

Radioactive Material Inspection Findings and Licensee Acknowledgement Form (MDER E-1)
Radiological Survey Record of Two Dickerson Residential Properties 3/26/98
NPI Radioactive Respiratory Protection Program 5/1/92
Stipulation and Settlement, Montgomery County Circuit Court 1/3/94
Stipulation, Montgomery County Circuit Court 11/12/97
Depleted Uranium Inventory At Dickerson 3/20/98
Cobalt-60 Inventory At Dickerson 3/13/98
Health Physics Daily Checklist
Health Physics Weekly Checklist
NPI Notification Letter Regarding The Next Melting Campaign 2/25/98
Maryland Laboratory Administration, Results of Soil and Water Analysis 4/16/98

Lead Inspector: Alan Jacobson

Date of Report: April 16 1998

Reviewer: Carl E. Trump Jr. Program Manager

Date of Review: 4/22/98

TABLE II - continued

Neutron Products Sample Results

SAMPLE	ISOTOPE	RESULT
	Results in total microCuries	
Smear-Wipe #14 1500 hrs 10/19/93	Co-60	(1.5±0.4)E-4
Hot Cell Particulate Filter After HEPA 10/20/93	Co-60	<2E-4
Smear-Wipe Bay Door Floor 1500 hrs 10/19/93	Co-60	(2.4±0.4)E-3 (15%)
Smear-Wipe Hot Cell Vent Exhaust 1500 hrs 10/19/93	Co-60	(1.8±0.4)E-3 (15%)
Smear-Wipe hot Cell Vent Bypass 1500 hrs 10/19/93	Co-60	(2±3)E-4
Soil Spot MR-23 1200 hrs 10/21/93	Co-60	(5.84±0.04)E-1(10%)
Smear-Wipe Post HEPA 1200 hrs 10/21/93	Co-60	<1E-3

TABLE II - continued

Neutron Products Sample Results

SAMPLE	ISOTOPE	RESULT
Results in microCuries per gram (wet weight)		
Dry Pond Soil 1355 hrs 10/19/93	Co-60	(3.04±0.02)E-4 (15%)
Discharge #2 Soil 1415 hrs 10/19/93	Co-60	(8.5±0.3)E-6 (15%)
Railroad Property Soil 1500 hrs 10/19/93	Co-60	(4.10±0.02)E-4 (15%)
North Dry Pond Soil 1500 hrs 10/19/93	Co-60	(6.3±1.2)E-7 (15%)
Railroad Spur by Pipe Soil 1500 hrs 10/19/93	Co-60	(1.271±0.012)E-4 (15%)
Creek Soil 1500 hrs 10/19/93	Co-60	(9.7±1.3)E-7 (15%)
Court Yard Fence 1500 hrs 10/19/93	Co-60	(8.03±0.11)E-5 (15%)
Gravel from Beneath Hot Cell Exhaust on Roof 1500 hrs 10/19/93	Co-60	(3.77±0.05)E-5 (15%)
DC Sewage Treatment Plant - Pretreatment #3 1200 hrs 10/21/93	Cr-51 I-131 Tc-99m	(6±3)E-7 (6.44±0.16)E-6 (25%) (9.4±0.2)E-6 (25%)
Courtyard Debris(leaves)	Co-60	(1.696+or- 0.003)E-2 (50%)

Table II (continued)

Neutron Products Sample Results

SAMPLE	ISOTOPE	RESULT
Results in microCuries per gram (wet weight)		
DC Sewage Treatment Plant-Pretreatment #4 1200 hrs 10/21/93	Cr-51	(9±4)E-7
	I-131	(6.24±0.15)E-6 (25%)
	Tc-99m	(9.3±1.5)E-6 (25%)
DC Sewage Treatment Plant-Post Treatment#1 1200 hrs 10/21/93	I-131	(8.9±0.2)E-6 (25%)
	Tc-99m	(9.2±0.8)E-7 (25%)
DC Sewage Treatment Plant-Post Treatment#2 1200 hrs 10/21/93	I-131	(8.7±0.2)E-6 (25%)
	Tc-99m	(9.2±1.0)E-7 (25%)

Note: Results are reported as: result ± 1s counting uncertainty. Estimates of systematic uncertainty are reported in parentheses, if appropriate

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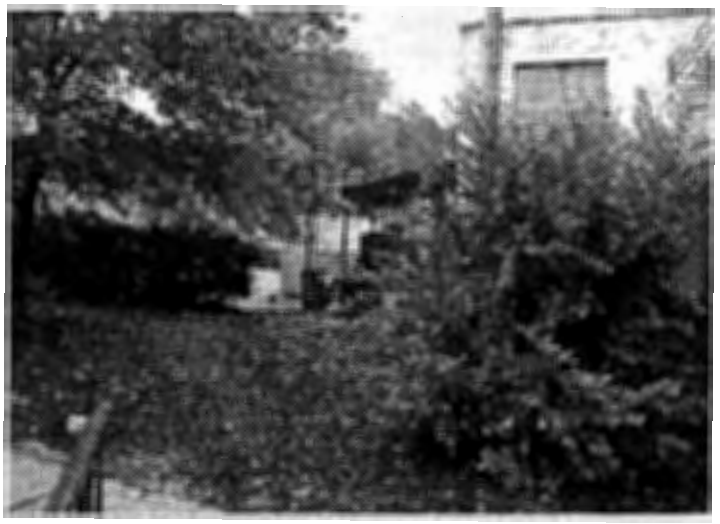
Maryland Department of the Environment
Radiological Health Department

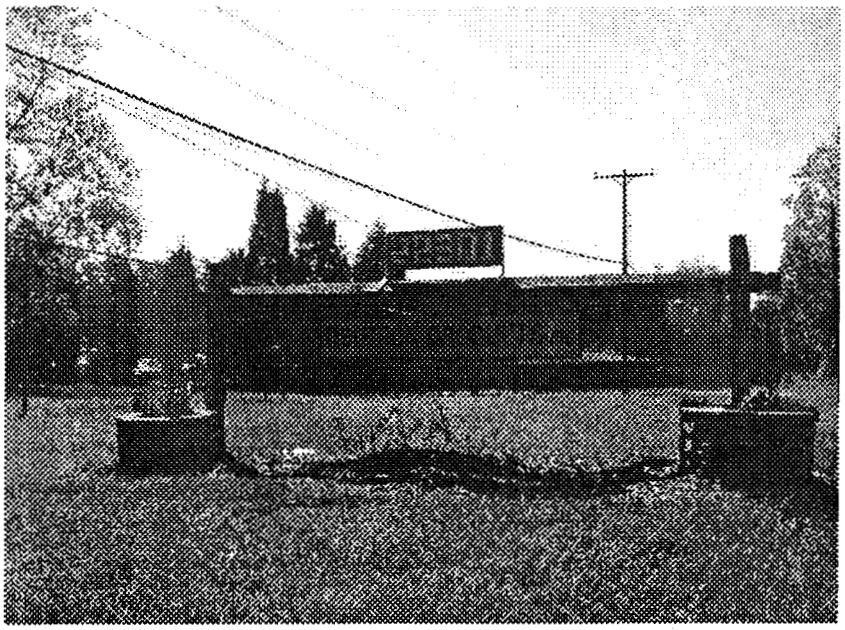
Neutron Products, Inc.
MD-31-025-01 Inspection
Photographs taken on September 20, 2000

Picture#1 – The courtyard area. Waste is stored in the waste storage rooms (back left) and with in the B-25 shipping containers.

Picture#2 – Another view of the courtyard, from the unrestricted side of the fence. Two soil samples were taken in this area: by the fence near the drain and by the corner near the generator.



Picture#3 – Neutron Products, Inc. sign.



Picture#4 – Mr. (b) (6) house which is directly across the street from NPI. NPI has posted a monitoring badge on his porch as well as in his home. The badge outside received 105.4 mRem for 1999 and the badge inside his home received 66.2 mRem for 1999.

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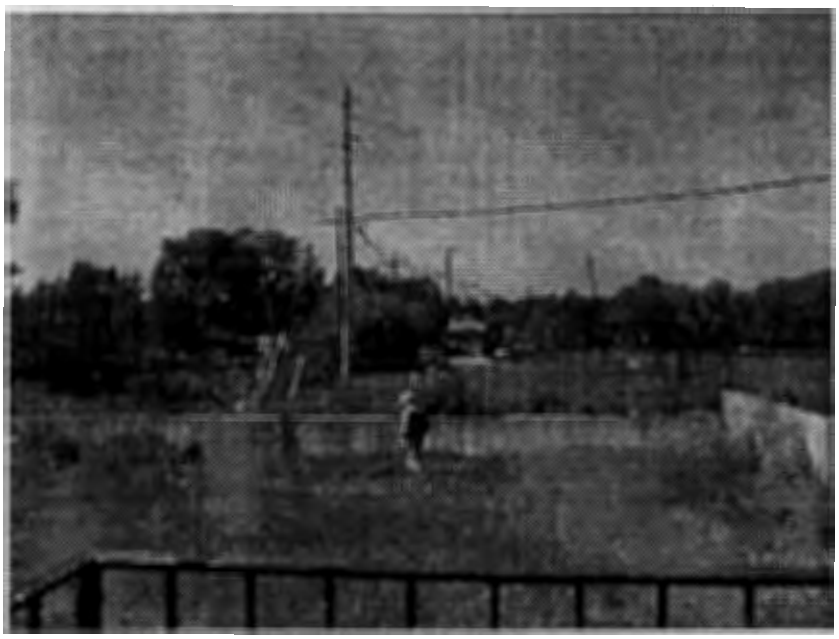
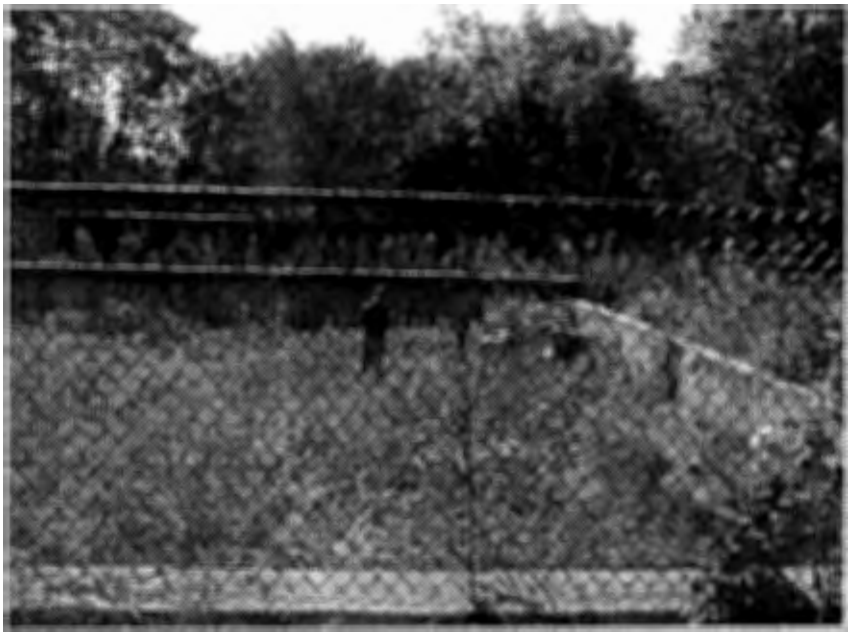
Picture#5 – The stone trap.

Picture#6 – The dry pond area (looking out from NPI building).



Picture#7 and #8 – Collecting soil samples from the rock bed within the dry pond area.



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Picture#9 – View of the railroad, looking toward Neutron Products, Inc.

Picture#10 and 11– Old drainpipe that extends under and next to the railroad.

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MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

SAMPLE SOURCE: NPI COLLECTOR: Jacobson/Nelson SAMPLE TYPE: Soil

COLLECTION DATE: 03/16,03/18/99 RECEIPT DATE: 03/19/99 REPORT DATE: 03/29/99 ANALYSES BY: Wise/Hegde
B. Wise

LAB. NO.	Sample Type	Location	^{60}Co pCi/g	
1767	Soil	Courtyard	7.7679 x 10E+03 ± 3.3262 x 10E+02	
1767L	leaves	Courtyard	7.7048 x 10E+03 ± 3.7174 x 10E+02	*
1767S	Soil	Courtyard	1.3406 x 10E+04 ± 5.9065 x 10E+02	*
1768	Soil	Sewer Element LAA	1.2035 x 10E+01 ± 6.9293 x 10E-01	
1769	Soil	Outside LAA Fence	1.6775 x 10E+02 ± 7.3845 x 10E+00	
1770	Soil	Outside Fence	1.0352 x 10E+02 ± 4.7674 x 10E+00	
1771	Soil	Outside Dry Pond	2.1690 x 10E+01 ± 1.0100 x 10E+00	
1772	Soil	RR Tracks Near Road	9.6314 x 10E+01 ± 4.5014 x 10E+00	
1773	Soil	RR Property Near Pond	1.0141 x 10E+02 ± 4.4152 x 10E+00	
1774	Soil	Dry Pond	7.6286 x 10E+01 ± 3.7762 x 10E+00	
1775	Soil	Dry Pond - Far Side	1.8664 x 10E+02 ± 8.3409 x 10E+00	

Note:
* Low weight and not all soil or leaves.

MARYLAND STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE
RADIATION LABORATORY REPORT
(410) 767-5537

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S. Wise

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1769	Soil	Outside LAA Fence	1.6775 x 10E+02 ± 7.3845 x 10E+00	
1770	Soil	Outside Fence	1.0352 x 10E+02 ± 4.7674 x 10E+00	
1771	Soil	Outside Dry Pond	2.1690 x 10E+01 ± 1.0100 x 10E+00	
1772	Soil	RR Tracks Near Road	9.6314 x 10E+01 ± 4.5014 x 10E+00	
1773	Soil	RR Property Near Pond	1.0141 x 10E+02 ± 4.4152 x 10E+00	
1774	Soil	Dry Pond	7.6286 x 10E+01 ± 3.7762 x 10E+00	
1775	Soil	Dry Pond - Far Side	1.8664 x 10E+02 ± 8.3409 x 10E+00	

Note:
* Low weight and not all soil or leaves.

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ESM 8/9/99

ORIGINAL

NEUTRON PRODUCTS INC
22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

5 August 1999

VIA FAX: 410.631.3198

Mr. Roland G. Fletcher
Environmental Manager
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

Re: Radioactive Material License Number #MD-31-025-01

Dear Mr. Fletcher:

I am writing in timely response to the Notice of Violation dated July 14, 1999 and received here on July 16. This letter contains our responses to the violations alleged therein. Our responses to the concerns and programmatic issues raised are set forth in a separate letter dated August 6 to avoid confusion in referencing.

Citation #1 states:

"1. Section D.501 titled "Surveys and Monitoring-General" requires in part that each licensee shall conduct surveys that are necessary to evaluate radiation levels and concentrations of radioactive material. License amendment 33, Item N dated May 23, 1989 requires in part that all soils exhibiting levels of radioactivity in excess of 8 picocuries per gram above background, for an equivalent area of 30 ft by 30 ft wherever found, shall be removed and properly stored/disposed of by the licensee. The gamma exposure rate at one meter above the ground surface shall not exceed 10 microR/hr above background for an area greater that 30 ft by 30 ft and shall not exceed 20 microR/hr above background for any discrete area.

"Contrary to the requirements of Section D. 501 and license amendment 33, the analysis of soil samples collected by RHP Inspectors from the dry pond and the adjacent railroad property collected on March 18 and 19, 1999 indicate that the soil concentration for cobalt-60 contamination exceeded 8.0 picocuries per gram. These contaminated areas of the dry pond and the adjacent properties are greater than 30 ft by 30 ft. The licensee failed to conduct soil samples and analysis to accurately determine the status of compliance during the years of 1997 and 1998. During the inspection, RHP Inspectors collected random soil samples from the far side of the dry pond and the adjacent railroad property. The samples were analyzed by the Maryland Laboratory Administration's Radiation Chemistry Laboratory who determined the cobalt-60 soil concentrations to be 186.6 and 101.4 picocuries per gram respectively. The licensee still has not removed soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0

picocurie per gram soil concentration limit. The Stipulation and Settlement (Civil Case No. 76639 in the Circuit Court for Montgomery County) dated January 3, 1994 required the licensee to clean all contaminated soil areas by June 15, 1994. The licensee failed to meet this deadline and is refusing to remediate this property. Furthermore, the dose rate at one meter above the ground surfaces of the dry pond and adjacent areas exceeds the dose rate limit of 10 micro R/hr above background. The RHP has determined the dose rate at two locations at the boundary of the dry pond to be approximately 531 millirem per year and 342 millirem per year. The fence surrounding the dry pond was constructed such that it does not prevent or adequately discourage unauthorized access. During the April 1997 inspection, the RHP inspectors found evidence that soil contaminated with cobalt-60 was removed by an unknown person other than the licensee. The licensee did not submit the design to the RHP for approval prior to construction and this issue still remains unresolved. This is a **REPEAT** and ongoing violation."

Response

1.1 It is no secret that we do not meet the requirements of License Condition 13N of Amendment 33. Prior to its imposition in 1989, we informed MDE that we would not be able to comply with this condition until after the courtyard had been enclosed; and the program we submitted in response was not in strict conformance with MDE's request. However, rather than resolve our differences at the time, MDE chose to characterize our response as being in substantial compliance, and contracted to cooperate with us to resolve any perceived deficiencies. Unfortunately, your concept of cooperation includes neither quantitative analyses nor any other consideration of technical feasibility or economic practicality; and as a result, our license has been burdened by harmfully stringent and remarkably counter-productive license conditions for more than a decade.

1.2 Nevertheless, during the intervening period, we have devised and implemented means other than Courtyard Enclosure which have enabled us to approach, but not nearly achieve, the impractical standard prescribed by License Condition 13N, and we have realized appreciable success in that regard. To wit:

we conceived, constructed, and put into operation a stone trap that reduced by about 80% the activity reaching our dry pond, thereby reducing both activity and radiation levels within the dry pond and downstream thereof;

although it is not practical to preclude forced entry to the dry pond by the mischievous members of our society, we built and posted an enclosing fence that is more than sufficient to deny inadvertent access to the innocent but unwary;

we undertook several successful campaigns to remove and package contaminated soil and stone from the stone trap, the dry pond itself, and the outflow region immediately downstream thereof, removing and evaluating tons of soil and stone on each such occasion, substantially reducing both radiation levels and soil contamination thereby, and establishing that we were successfully recovering all

but a fractional percent of the activity carried by stormwater entering the system; and

we performed a major cleanup and reorganization of the south waste room, thereby substantially reducing skyshine from the storage of RadWaste that MDE would not authorize us to compact.

As a consequence of the measures implemented above, a current survey shows the waste-high radiation level on the siding had been reduced to approximately 70 uRem/hr, a reduction of 60% from the level of 170 uRem/hour measured at the same location in 1991. However, rather than acknowledge and cooperate with our good faith efforts to do what we reasonably could to further reduce a level of contamination, already far below regulatory limits and of no conceivable concern to public health and safety, MDE ignored our progress, cited us for failing to satisfy the impractical limits of License Condition 13N during virtually every inspection of our 01 license, and sought to impose grossly inordinate financial penalties for failing to achieve the impractical result it had mistakenly required.

1.3 As you know, rather than pay the inordinate fine (of $120,000) you sought to levy in 1990, we proposed to spend at least three times that amount on mutually agreeable radiation safety projects - including the enclosure of our Courtyard and the construction of Radwaste management facilities therein which were reasonably required to satisfy the requirements of Extra Regulatory License Conditions 13L and 13N. Yet you rejected that constructive approach, for stated reasons that were unintelligible, in favor of a lawsuit which required us to spend on legal fees the funds we were prepared to devote to the satisfaction of your unsubstantiated and then unattainable requirements. Even at this late date, it would seem that a written explanation is required.

Moreover, MDE has also chosen to misrepresent the essential features of the Stipulation and Settlement dated January 3, 1994 which purportedly settled that suit. At the settlement meeting, I explained that it would be counterproductive to remove soil from the siding because it presently serves as an effective barrier to the spread of activity (however low and innocuous) into areas more likely to be occupied. As a result, it was agreed in writing that we would not remediate the siding, or satisfy the limits of Condition 13N as it pertains to our own property, until two months after the Courtyard enclosure was complete, and the written Agreement provides that we will not be penalized for failing to do so. Moreover, it was orally agreed that, even after the courtyard is enclosed, the extent of downstream and dry pond cleaning would be governed by considerations of ALARA.

1.4 Indeed, that understanding has served both Neutron and the community well since the activity on the siding is contained within a distance of about fifty feet. Yet we continue to be cited for failing to undertake what was agreed at the time to be a counterproductive and expensive exercise of no material benefit to the community.

1.5 Putting all this in perspective, a member of the public would need to ingest 5,000,000 picocuries in order to be exposed to a committed effective lifetime dose

equivalent of 50 millirem. At the average contamination levels cited by RHP, this would amount to ingesting more than a hundred pounds of contaminated soil. Even if such an unlikely event were to occur, the cobalt-60 present in the soil would pose only a minimal hypothetical risk compared with the suicidal risks associated with eating so much dirt and stone, whether contaminated or not. Thus it is clear that there is no credible risk to the public from ingestion of the contaminated soil at issue here.

1.6 Moreover, as noted by NRC more than five years ago in response to an MDE query, regulatory limits on permissible soil contamination levels are governed by the radiation exposure likely to be experienced by real people. It is mind boggling to us that, after all these years, no one within RHP has performed the analyses required to either verify or contradict Neutron's analysis, long shared with MDE, that the levels of cobalt-60 contamination in and around the dry pond are not likely to result in exposures to individuals in excess of 2 mRem per year, and do not constitute either a public health hazard or a violation of any duly promulgated regulation or license condition.

1.7 Finally, it should be obvious, after multiple soil removal campaigns, that no reasonable level of soil removal and remediation at this time, or any intervening time, will provide for ongoing compliance with Condition 13N. Rather, until such time as the courtyard is enclosed, it is unlikely that literal compliance with Condition 13N, as interpreted by MDE, could be achieved, if at all, without the continuing and totally unwarranted expenditure of tens (perhaps hundreds) of thousands of dollars per year and several man weeks of tedious work. I submit that few, if any, responsible regulators would fail to consider any such expenditure to be a misdirection of priorities and a proposed squandering of limited material and human resources much better applied to projects far more likely to benefit radiation safety, public health and environmental decency.

1.8 Your comments about the fence are not well taken. Clearly, the purpose of the fence surrounding the dry pond is to discourage inadvertent entry by members of the public, and for that purpose, the existing fence is more than adequate. Moreover, no fence of the type prescribed by both MDE and Neutron is high enough to keep out someone who wants to get in; and in the course of the April, 1997 inspection to which you refer, I am told it was evident that "the soil contaminated with cobalt-60 that was removed by an unknown person other than the licensee" was, in fact, removed by digging under the fence not by climbing over it.

Corrective Action

1.9 On Neutron's part, Dick Demory, Jeffrey Williams and Bill Ransohoff will continue to work on alternative means for reducing the amount of contamination which reaches the dry pond and the rail siding. Specifically:

> Recently performed laboratory tests have demonstrated the effectiveness of clinoptilolite, which is a naturally occurring zeolite rock, at removing cobalt-60 contamination from water; and some clinoptilolite gravel has been deployed in the

stone trap and dry pond in order to test its effectiveness in the field;

We have taken additional measures within the LAA itself (see Response to Citation #3) which we believe will be at least partially effective in further reducing the outflow of activity from the courtyard; and

For the reasons set forth in paragraph 1.10, we are planning to restore the original dry pond channel to its original contour.

1.10 Our most recent surveys of the dry pond and its environs indicate that the cobalt-60 concentration in the area downstream of the rip-rap on the discharge side of the dry pond (and proximate to the dosimeter location which MDE claims to have exceeded 500 millirem) has increased relative to other locations upstream. In hindsight, it appears that our multiple remediation campaigns have lowered the contour of the dry pond channel and reduced somewhat the efficiency for capture within the dry pond itself. It is timely for another drypond remediation campaign, in the course of which we plan to remove contaminated soil in the effected area on both sides of the fence and from the dry pond channel, after which we will restore the original contour of the dry pond channel. Pending results from the clinoptilolite trial, we may also deploy more of this material at the pond entrance in attempt to further reduce the downstream migration of activity. We are awaiting a dry pond inspection report from the county and plan to make any other required dry pond changes concurrently. In any event, we expect another interim removal of contaminated soil to be completed during the next few months under the supervision of Jeffrey Williams.

1.11 These are the types of corrective actions which we have used over the years to reduce the dose rates on the abandoned rail siding as described in Paragraph I.1 above; and although their continuation is not necessary from considerations of public health, it has been and remains a prudent course of action for its prospective positive impact on public relations. We respectfully submit that the realization of a positive impact is thwarted, not by Neutron's failure to perform as reasonably required by the facts, but by MDE's ill considered refusal to admit that the Dranning limits of License Condition 13N were imposed in error and improperly enforced, and the needless anxiety created among some of our neighbors as a result is a disservice to the community. In the course of our forthcoming Management Conference, we would appreciate an opportunity to discuss and consider a meaningful remedy.

1.12 Regarding surveys and monitoring, the perimeter of the drypond and the adjacent area downstream thereof have been continually monitored with thermoluminescent dosimetry throughout the period in question and it has been no secret that these areas do not meet the Extra Regulatory requirements of Condition 13N. In addition, three documented surveys were conducted in 1999, at least one of which was reviewed by RHP's inspector. While the data do not (and for reasons stated above should need not) demonstrate compliance with Condition 13N, when viewed in historical context it does show a marked reduction in activity from levels present in 1991 which were, in turn, much

lower than those of 1989. Again, rather than continue to berate us on this matter, it would seem more constructive for MDF to acknowledge the genuine progress that has been made, take its fair share of the credit, and repeal its incessant demand for counter-productive action on our part.

II. **Citation #2 states:**

> "2. Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means necessary to maintain radiation exposures to levels as low as reasonably achievable.
>
> Contrary to Section D.101, the licensee failed to maintain radiation exposures to members of the public living near the plant to levels as low as reasonably achievable (ALARA). This is a REPEAT violation from previous inspection. The RHP measured approximately 202 millirem per year at the portico of a resident's home, 353 millirem per year on the lawn of a nearby resident and 150 millirem per year next to the home located on this property. The RHP has identified the waste storage rooms as the source of these elevated radiation levels in the community. NPI continues to store quantities of radioactive waste. In fact, the licensee has only shipped for disposal, a small fraction of the radioactive waste that they have generated over the past three decades."

Response

II.1 First, it is relevant to note that the principal source of radiation in the neighborhood is from skyshine that is very low in energy and substantially shielded against by the ordinary walls and roofs of area dwellings. Thus, outdoor readings are not indicative of actual exposures. The person at highest risk of exposure is an individual who occupies the house across the street, and spends the great majority of his time indoors. Thus, we have been monitoring the inside of his home for several years. For 1998, our records indicate that he received a dose of 76 millirem based on TLD data and using conservative assumptions. The dosimetry data for 1998 was reviewed by RHP inspectors.

The 1998 exposure was essentially unchanged from that of 1997, but when compared to 1996 data, applying the same conservative assumptions, his exposure has been reduced by about 18 percent. The reduction resulted from a combination of shielding the direct component from the north waste room; the bagged waste sorting and shipping campaign of 1998; and the reorganization of the south waste room. While reduction of public exposure was not the sole objective of the south waste room project, the reduction in skyshine which resulted came at the expense of 6.9 person•rem of occupational exposure to Neutron employees.

II.2 Moreover, with regard to ALARA, we are not aware of any additional measures which could be taken at this time that would reduce the dose to the most highly exposed members of the public that would not require offsetting occupational exposure two to three orders of magnitude greater. If RHP knows of some economically viable measures we

might undertake, pending the completion of the Courtyard Enclosure Project, which could reduce radiation background in the community without significant increases in occupational exposure it is timely for you to share them with us. This is our second request. Alternatively, if it is the official position of RHP and/or MDE that it is ALARA to effect a small decrease to public exposure at the expense of a much larger increase in exposure to workers, then kindly document the basis of that position. Meanwhile, based on the guidelines provided in NUREG 1530, in performing ALARA analyses the value of $2,000 is to be placed on each person-rem of exposure. Accordingly, if we can reduce our neighbor's exposure to zero for less than $152 per year ($2,000/person-rem x 0.076 rem/year), we are obliged to so perform. We are not aware of any action we could take for any reasonable sum of money (not limited to $152) that would reduce his exposure by any measurable amount. If MDE knows of any such opportunity, please advise and we will consider it.

II.3 In any event, as opportunities to reduce public exposures arise in conjunction with some other project so that they can be accomplished without undue increases in occupational exposure, we will pursue them as we always have (see paragraphs II.4 and II.5). In reality, it is our experience that we routinely spend significantly in excess of ALARA-recommended amounts in trying to reduce exposures to both employees and neighbors, and MDE's allegations in this regard are ill considered in the extreme. Our current effort involves the planned reorganization of the North Waste Room intended primarily for other purposes. The plans for this reorganization are well advanced, we are continuing to make the necessary preparations, and we intend to complete the process within the next few months. As a by-product, background radiation in the neighborhood will also be reduced in a way that could not begin to be justified (for that sole purpose) by considerations of ALARA.

II.4 A major source of contention between MDE and Neutron is MDE's insistence that ALARA means "as low as possible" and that ALARA analyses can never be used to justify inaction on the part of the licensee. It is our position that, in its interpretation of ALARA, MDE has strayed very far afield from both NRC's documented intent and from the common sense reading of MDE's regulations in that regard; and we consider it critical to resolve the matter. For that purpose, we suggest that both competent NRC authorities on the matter and MDE top management be present at our Management Conference.

II.5 In addition, the effect of our stored radwaste on background levels of radiation could be significantly reduced by the prudent use of a compactor. As you know, we have been prohibited from compacting waste for more than a decade. We spent approximately four years trying to secure MDE's approval for a redesigned compactor which met all of MDE's requirements. However, ultimately MDE indicated that it had no intention of approving a unit of our own design and construction and that we should have proposed a system manufactured by others and used elsewhere in the industry.

II.6 While we take exception to that policy, we have identified such a unit, placed a deposit on it, and submitted a proposal to MDE for a license amendment that would authorize its installation and use. This is a compactor and air handling system which has

been used extensively throughout the industry for the compaction of radwaste. For this project to be completed, the next step is for MDE to grant approval for the installation and use of the proposed compactor.

II.7 Furthermore, use of the compactor will be required to make most efficient use of our radwaste shipments. For instance, an 8 drum shipment of uncompacted waste will only remove 8 drums from our facility. With the use of a compactor, we can reasonably expect to remove 20 to 40 drums in such a shipment.

II.8 MDE's allegation that Neutron "has shipped for disposal, a small fraction of the radioactive waste they have generated over the past three decades" is both false and maliciously misleading. The relevant facts, in proper context, are that in a manner consistent with the clearly stated intent of The Atomic Energy Act of 1954 As Amended ("The Act"), and the proper application of ALARA, the prudent management of the Radwaste generated by Neutron comprises:

the encapsulation and underwater storage of the highest activity waste pending its decay to the point where it can be stored in above-grade shielded storage, or disposed of as radwaste significantly reduced in activity;

the storage of other high activity radwaste which does not lend itself to encapsulation in above-grade shielded storage which may include drum shields, waste storage vaults, shielded waste storage rooms, etc.;

the accumulation, packaging and unshielded (or lightly shielded) storage of low activity waste, and

the handling of waste for shipment at such time as it has decayed to the point where the radiation safety benefits of disposal exceed the cost (in occupational exposures and monetary costs) in a way that is truly responsive to ALARA and the stated intent of The Act.

II.9 As a result, the great majority of the radwaste curies generated by Neutron, are encapsulated in stainless steel, stored for extended periods, and disposed of by decay rather than offsite shipment. Similarly, more of the curies stored in drum shields are properly disposed of by decay than by premature shipment for disposal. However, prior to 1990, the great majority of radwaste volume was compacted, packaged and disposed of within a few months (or years) of its generation. Our then traditional approach to Radwaste was altered in response to two unrelated events:

the failure of the waste disposal site at Maxey Flats, KY, followed by lawsuits against those of us who sent waste there in good faith; and

orders from the State restricting our shipment of Radwaste, and requiring us to submit plans to store all radwaste generated by Neutron for five years.

ORIGINAL

The Maxey Flats episode raised a stern warning that the shipment of radwaste to an approved "disposal" site did not really constitute disposal. Rather, it may well constitute an act of putting one's waste into less reliable hands at great expense while retaining liability.

The State's initiative brought forth from Neutron a totally constructive response that was trashed by the Department for stated "reasons" that obviously lacked validity. In any event, we were being required to make a major investment in Radwaste storage, and in view of all the circumstances, it seemed irresponsible to spend the funds that would be required to safely store our waste in order to ship, prematurely, the only certain demand we had for the storage capacity we were being Ordered to create under what proved to be false pretenses. Meanwhile, we became intrigued with both the economic and radiation safety advantages of extended term storage for high activity Radwaste.

In any event, the great majority of our waste volume has been and is, of low activity; and under the competitive market conditions that are ordained by The Act, Neutron would not choose to store the great majority of its waste volume for a period longer than reasonably required to accumulate optimum shipments; and that is precisely what we did prior to 1990. Thus, there is no truth to MDE's twin myths:

> that we have only shipped a minor portion of the total waste we have generated; or
>
> that we have a desire to store any waste (high or low activity) for periods longer than those which are economically necessary and/or ALARA optimum.

Corrective Action

II.9 The fact that MDE has cited us in alloged Violation #9 for a violation of ALARA indicates that some sort of ALARA analysis was performed by MDE which would support that citation. Please forward that analysis to us promptly so that we can evaluate that part of the citation on its merits. Alternatively, please inform us of the flaw(s) in our assessment that we are in wide margin compliance with ALARA except to the extent that we incur unnecessary exposures in attempting to mollify MDE by performing to its wishes on matters that may be adverse to ALARA but are not too difficult to oblige.

II.10 The planned reorganization of the North Waste Room is being undertaken to fulfill several necessary objectives unrelated to public exposure. However, we have identified an opportunity to decrease the skyshine emanating from waste storage in the process. We have completed our planning and are currently fabricating shadow shielding to be used in this project and will proceed once the shields are completed. The actual reorganization will be performed under the overall supervision of Jeffrey Williams, and we intend to schedule it at our earliest opportunity and complete it by the end of the summer.

II.11 Similarly, the installation and operation of a drummed waste compactor fulfills many

desirable objectives including: waste volume reduction (which MDE elsewhere supports), the reduction, if not elimination, of combustible packaging, and a decrease in effective disposal costs. In addition, the compaction of existing waste in storage will allow us better use existing means to shield waste in storage and thereby further decrease skyshine. The installation of the compactor will be performed under the supervision of Jeff Corun and Dick Demory, but no further progress on this project can be made until the approval of its installation and use from MDE is secured. We know of no reason why such an approval cannot be quickly granted. Similar systems have been used extensively throughout the industry and it is clearly in the interest of Neutron, MDE and the community to complete acquisition, installation and startup with minimum delay.

In summary, Citation #2 seems to be based primarily on misinformation and erroneous assumptions and analyses; and we respectfully suggest that it be withdrawn.

III. Citation #3 states:

> "Section D.501, titled, "Surveys and Monitoring-General" requires in part that each licensee make or cause to be made surveys as may be necessary to evaluate the extent of the radiation hazards that may be present and to establish compliance with these regulations.
>
> Contrary to Section D.501, the licensee failed to conduct radiological surveys in the courtyard area of the LAA sufficient to determine the presence of inaf debris, which contained elevated levels of cobalt-60. RHP Inspectors collected a sample of this debris, which contained a cobalt-60 concentration of approximately 7704.8 picocuries per gram. The RHP has long identified this area as a potential release point where radioactive materials exit the plant in an uncontrolled manner."

Response

III.1 We have undertaken an extensive courtyard cleaning and remediation effort. Several years ago, we identified several spots of fixed contamination embedded in the courtyard (primarily in joints in the concrete). Those which could be easily dislodged without extensive damage to the courtyard and without risk of their dispersal were removed. The remainder were painted to fix them in place and to hinder their dissolution by rainwater.

III.2 Those spots have now been forcibly removed, the impacted concrete joints have been filled with grout, and most of the concrete portion of the courtyard has been seal-coated to reduce accessibility for the deposition of additional contamination.

III.3 Moreover, most of the courtyard has been thoroughly cleaned, with the remainder to be done after the completion of the north waste room reorganization briefly described in our Response to Citation #2 above.

III.4 Equally important, we have worked to reduce the likelihood of contamination

entering the courtyard. The floors of the room behind the cell, the ante-room and the shop have all been cleaned and repainted so that they will be easier to decontaminate. The application of this paint should not significantly hamper whatever decommissioning activities are reasonably required in the future.

III.5 In addition, the door between the room behind the cell and the open courtyard has been sealed more permanently and more effectively than before.

III.6 Our health physics technician had previously been instructed to periodically remove and package leaves collecting in the courtyard and for the most part our observations were that he had done so. However, we overlooked the small amounts of humic material which deposited in the courtyard's nooks and crannies. This material contains many carboxylic sites capable of ionicly bonding cobalt that would otherwise have been fixed by the stone trap or drypond. It was this humus which was sampled by RHP's inspector, and we are expanding our courtyard policing practices to include the recovery of such material.

III.7 We understand and acknowledge the Department's concern about contaminated dirt and leaves in the courtyard being a potential source for off-site contamination. However, our survey program has been finding fewer and fewer particles of lesser and lesser activity over the years, and we believe this to be an indication of overall improvement in our contamination control program. We also understand that the Department does not believe our survey program to be adequate, and that issue is addressed in our response to citation #9.

Corrective Action

III.8 Danny Winenolt has been made responsible for ensuring that the courtyard remain free of significant quantities of leaves and other debris which may adsorb cobalt-60, and a procedure has been drafted for his training and use.

III.9 Your repeated references to "the release of radioactive materials in an uncontrolled manner" is neither well considered nor well taken. The salient facts are:

that we release to the environment less than one millicurie for each megacurie of cobalt-60 processed, or less than one part per billion;

that said releases are harmless to persons and property, are periodically recovered, and are in wide margin compliance with duly promulgated regulations related thereto; and

it is long past time that you terminated your irresponsible rhetoric in that regard.

IV. Citation #4 states:

"Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means to maintain radiation releases of radioactive material to

levels as low as reasonably achievable.

Contrary to Section D.101, the licensee failed to use all means necessary to control releases of radioactive material from the Limited Access Area (LAA) to levels as low as reasonably achievable (ALARA). Cobalt-60 contamination continues to be found outside of NPI's boundary thus substantiating the loss of control of a hazardous radionuclide. Two soil samples that inspectors collected from the unrestricted side of the LAA fence contained cobalt-60 soil concentrations measured to be 167.7 and 103.5 picocuries per gram. Soil samples that were collected by the railroad tracks near the road and adjacent to the fence on the outside of the drypond measured 88.3 and 21.7 picocuries per gram respectively. The soils in the dry pond and adjacent railroad property contain concentrations of cobalt-60 that exceed regulatory requirements. This is a REPEAT and ongoing violation."

Response

IV.1 On January 4, 1994, in response to an MDE query regarding the viability of the 8 picocurie per gram limit imposed upon our license, NRC headquarters advised that the important consideration is the level of exposure members of the public are likely to receive as a result of that contamination. Not having received the answer it sought, MDE simply ignored the guidance.

IV.2 Moreover, we estimate that no individual, except those Neutron employees who periodically clean the dry pond, receives more than 2 millirem per year from the cobalt-60 contamination on and around our property, vis-a-vis a regulatory limit of 100 mRem per year. In addition, we know of no model which credibly projects that the cumulative exposure to all members of the public *from such contamination* would exceed 5 millirem per year.

IV.3 So, again using the $2,000 per person-rem value recommended for ALARA analyses in NUREG 1530, we find that if actions on our part costing less than $10 per year ($2,000/person-rem x 0.005 rem/year) could entirely eliminate the cumulative exposure from soil-deposited contamination, then those actions should be performed.

IV.4 Clearly, we spend significantly in excess of $10 per year in our efforts to reduce the presence of soil-deposited contamination and the citation that we are not in compliance with ALARA in this regard is, therefore, clearly without merit.

Corrective Action

IV.5 As in Citation #2, the fact that MDE has cited us for a violation of ALARA indicates that some sort of ALARA analysis has been performed by MDE which would support that citation. Please forward that analysis to us so that we can evaluate it on its merits. Alternatively, please inform us of the flaw(s) in our assessment that we are in wide margin compliance with ALARA. Otherwise, kindly rescind this citation.

ORIGINAL

VI.4 Again, our performance during this period constitutes evidence of sound contamination control, and a true performance-based inspection would recognize that, although some i's were left undotted and some t's uncrossed, the intended purpose of the floor surveys (to verify that the building outside of the LAA remained contamination-free) was not compromised. Therefore, no citation should have been issued, and we respectfully request that Citation 6 be reconsidered and rescinded.

VII. Citation # 7 states:

> "Section D.1103 titled, "Records of Surveys" requires in part that each licensee shall maintain records of the results of radiation surveys required to demonstrate compliance with regulatory limits and item D.8 of license amendment 33:
>
> Contrary to Section C.31 and D.1103, records of the floor monitoring surveys, which were conducted during the months of March-July, 1998, were not maintained or available for inspection."

Response

VII.1 The former employee referred to in our Response to Citation #6 was also responsible for conducting the March through July surveys. Although he performed them, he failed to reduce his data and findings to the standard form we use for this purpose, and he was some months behind in this paperwork when he left our employment. Despite our numerous attempts, he never did provide the appropriate documentation. However, during the inspection, your inspectors were provided with a document certifying that he conducted the surveys and that no contamination was found.

VII.2 This is another instance where a true performance-based inspection would recognize the effectiveness of the program and forgive the minor transgression on the paperwork.

Corrective Action

VII.3 Floor surveys conducted from October 1998 onward have been documented and records are available for inspection, a corrective action taken 6 months before the MDE inspection.

VII.4 In view of all the circumstances, Citation 7 appears to be a rather egregious example of citation inflation, and we respectfully request that it be rescinded.

VIII. Citation #8 states:

> "License Amendment 33, Item I and NPI's Random Inspection Program dated May 14, 1993 requires in part that the Radiation Safety Officer implement random inspections of the LAA and unrestricted areas on a monthly basis.

Contrary to Section C.31 and license amendment 33, a monthly audit of the LAA was not conducted as required for August 1998. This is a REPEAT violation from the April 29-30, 1997 Departmental Inspection. The RHP is further concerned that the Random Inspection Program is still not effective in resolving items of noncompliance and radiation safety concerns."

Response

VIII.1 The purpose of the monthly audits is to ensure that company management periodically reviews some portion of the operations in the LAA. Due to the then-recently completed melting campaign and subsequent hot cell clean-up, there had been an inordinate level of management oversight in the LAA, thereby vitiating the need for even more management presence within the LAA and exacerbating the need for management attention elsewhere.

VIII.2 We also take issue with RHP's statement that the program is not effective. We have been telling RHP for years that the program has outlived its original purpose and should be modified. Since MDE will not permit us to modify the program without its prior approval, we sent MDE a draft of a revised program on July 28, 1998. RHP dismissed our proposal out of hand at the management conference held one year ago this week.

VIII.3 We have tried to act constructively to revitalize the existing program; we have been reasonably successful in that regard; and a review of the monthly inspection reports and quarterly reviews will show that we have even addressed, with corrective action, some of MDE's stated concerns.

Corrective Action

VIII.4 Although we believe the current program can be improved along the lines suggested last summer, it is effective in its current mode for what it was designed to do, and its implementation is consistent with the conditions in our license. MDF has been receiving the monthly letters certifying that the monthly audits have been performed and that the reports have been written, as outlined in our letter of November 25, 1998, and all required inspections and quarterly reviews have been conducted from October 1998, onward.

VIII.5 As noted last year by Mr. Williams, he thinks the program can be improved; and in view of all the citations it has evoked, I do not understand your reluctance to either review, and comment upon his approach, or give us a free hand to use our own judgment. Considering that we have no record of the Department's approval of the program we drafted more than six years ago, and in view of the fact that our conduct of it has been the source of numerous citations, I fail to understand why it has become so holy that it can't be upgraded? Please explain in writing.

VIII.6 Meanwhile, on the merits, there is no substance to Citation #8. Rather, it appears to be a vintage example of citation inflation, and we respectfully request that you rescind it.

ORIGINAL

VIII.7 We would be pleased to discuss with you the program modifications, as outlined in our draft of July, 1998, or any improvements you may wish to suggest. Until then, it appears that no further corrective action is appropriate, and none is contemplated. Kindly confirm your concurrence.

IX. Citation #9 states:

"License Amendment 33 Item D.8 and NPI's one kilometer survey plan requires in part that the licensee conduct monthly surveys of residential properties located within the one kilometer radius of the plant.

Contrary to Section C.31 and the one kilometer survey plan approved by the RHP and license amendment 33, radiological surveys of residential properties located within the one kilometer radius of the plant were not conducted in June and July 1998. Furthermore, the majority of the residential properties in this area have never been surveyed for radiological contamination."

Response

IX.1 At MDE's request, a flyover of NPI's facility and the surrounding areas was conducted by DOE/NRC in late 1993 for the advertised purpose of discerning the location and frequency of off-site contamination. The survey was conducted over a 42 square kilometer area. Despite the fact that a very sensitive crystal was used, no contamination was found outside a radius of approximately 300 m around the plant. Nor was any contamination found within the 300 m radius, although it was determined that the background levels from the plant were such that they would mask any low level contamination within that area.

IX.2 Armed with this information, and coupled with the fact that our own data of previous community surveys made it very clear that most of the spots of contamination had been found on a few properties primarily downwind of the plant, we saw no need to change our previously devised survey strategy, the purpose of which was not necessarily to cover the most area, but rather to find and remove even inconsequential levels of contamination. This is not to say that we conducted all of our surveys in one area. Rather, as provided by the Plan, we used the results of our findings close to the plant to help determine the locations for subsequent surveys further away from the plant.

IX.3 In addition, we would occasionally survey a property not in the general direction of most of our findings. Although we rarely locate contamination on such surveys, we follow any leads developed when we do, as prescribed in the plan. Over the years, we have been finding fewer and fewer spots and we have recently started to expand the radius of such surveys. Although we have never proposed to survey all properties (or even most of them), we have advertised a willingness to respond to specific survey requests, and we have often done so.

IX.4 We have found that a number of residents contacted do not wish us to survey their property, and some have told us that MDE had already conducted surveys. In order to expand our data base and to assist with our planning of surveys we would appreciate receiving from RHP any data they have collected in the course of conducting property surveys in the Dickerson area.

Corrective Action

IX.5 In recent months, we have surveyed properties which we had not previously surveyed and we intend to continue to do so on a regular basis. Surveys have been timely and complete since August of 1998.

IX.6 Cathy Bupp has been conducting the surveys, often accompanied by Danny Wineholt.

X. **Citation 10 states:**

> "Section D.401 titled, "Testing for Leakage or Contamination of Sealed Sources", and license condition 12 requires, in part, that each sealed source with a half-life greater than 30 days be leak tested at intervals not to exceed six months.
>
> Contrary to the requirements of Section D.401 and License Condition 12, the licensee failed to test each sealed source for leakage or contamination within the required six (6) month frequency. Specifically, the licensee did not conduct any leak tests of their sealed source inventory (sources not transferred to an authorized recipient) during the year of 1998, a time period greater than six months. Additionally, leak tests were not conducted in 1999 until the day the inspectors requested access to these records for examination."

Response

X.1 Of the dozens of routine health physics and radiation safety tasks which we are required, either internally or externally, to conduct on a regular schedule, the vast majority were quickly reassigned to alternative personnel after our staffing disruption. Unfortunately, the semi-annual leak tests were overlooked.

X.2 Upon resumption of leak testing, no evidence of failed encapsulation was found.

Corrective Action

X.3 Conduct of the leak tests has been reassigned to Danny Wineholt under the supervision of Jeff Corun and Dick Demory. A leak testing schedule has been entered in our computerized "corporate calendar", a task scheduling and reminder program.

XI. Citation 11 states:

> "Section D. 1104 titled "Records of Tests for Leakage or Contamination of Sealed

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Sources" requires in part that records of leak tests required by Section D.401 shall be maintained for inspection by the Agency. Section A.4 titled, "Records" requires in part that each licensee shall maintain records showing the receipt, inventory, transfer, and disposal of all sources of radiation. Section A.5 titled "Inspections" requires in part that each licensee shall make available, upon inspection by the Agency, records maintained pursuant to these regulations.

Contrary to Sections D.1104, A.4 and A.5, records of leak tests, which were conducted during the years of 1990 to 1997, were not available for inspection. Additionally, records of shipments, receipt and transfer of radioactive sources were not adequate and readily available for inspection. Inventory of radioactive materials was maintained in a computerized database, which evidently was not updated and maintained on a regular or frequent basis. As a result, these records were not readily available for inspection in a timely manner in that NPI spent several hours creating material inventory record when it was requested by RHP inspectors for review."

Response

X.1 As stated above, we suffered a health physics staffing disruption in 1998. During this period, records of leak tests for the period in question, normally housed in the health physics office, were mislaid. They have since been recovered.

XI.2 As MDE knows, we have detailed records of radioactive material shipped and received, and those records are kept in the appropriate customer files because, for most purposes, that is the most efficient place for us to keep them.

XI.3 However, we recognize that this filing system does not make for efficient inspections. As a result, we have started a new logbook which maintains our running inventory and records the amount of cobalt-60 received and whence it came, as well as the amount of cobalt-60 shipped and where it went. We believe that this will improve the efficiency of subsequent MDE inspections.

Corrective Action

XI.4 Maintenance of the aforementioned logbook will be performed by Ed DeRosa and shall be updated on a schedule no less often than monthly.

XII. Citation 12 states:

"Section D.1108 titled, "Records of Dose to Individual Members of the Public" requires in part that each licensee maintains records sufficient to demonstrate compliance with Section D.301, which describes the dose limit for individual members of the public.

Contrary to Section D.1108, the licensee failed to maintain records sufficient to

demonstrate compliance with the 100 millirem per year dose limit for individual members of the public for the year of 1998. At the exit interview, the Radiation Safety Officer described the manner in which NPI can demonstrate compliance with Section D.301 titled, "Dose Limits for Individual Members of the Public". However, a written document describing this evaluation or a record demonstrating compliance by measurement, calculation or appropriate simulation model, using recent radiation monitoring data, was not available for review during the inspection."

Response

XII.1 For the year 1996, we prepared an analysis of public exposure to the most highly exposed cohort. This analysis was based on interviews with the individual, plus surveys and some TLD data. The analysis assumed that the individual spent the majority of his time indoors, which was based on information supplied by him. As a conservative assumption, we placed a TLD in the highest dose rate area of the house and further assumed that the individual spent 100% of his time at that spot.

XII.2 For the year 1997 (the first year for which complete dosimetry data was available) we included our analysis in our annual report using the same conservative assumptions and methodology.

XII.3 For the year 1998, we collected and reviewed similar TLD data, and it was our intention to provide a written review in the 1998 annual radiation protection program review, as we had done in 1997. At the time of inspection the annual review was still in preparation. However, the dosimetry data was supplied to and reviewed by your inspectors, clearly demonstrating compliance with D.301 by D.302D.II.(1).

XII.4 Please cite the passage from COMAR requiring written analysis.

Corrective Action

XII.5 The written analysis described above will be included in annual review of the radiation protection program, which will be performed by Jeffrey Williams and is scheduled to be completed later this month.

XIII. Citation 13 states:

"License amendment 33, item 13.L dated May 23, 1989 requires in part that the radiation levels at the boundary of the facility shall not exceed 500 millirem per year.

Contrary to Section C.31 and license amendment 33, the licensee failed to comply with the 500 millirem per year boundary limit. The RHP measured 531 millirem at the fence of the dry pond for the year of 1998."

ORIGINAL

XIII.1 This license condition has been an issue of contention since its imposition on Neutron's license in 1989. Several years ago, MDE wrote to the NRC requesting guidance, and the NRC confirmed Neutron's position that an evaluation of the potential levels of exposure to members of the public was important in determining whether the excessive stringency of such a condition was justified (the limit is less than 3% of the regulatory limit which applies to all licensees in the United States, including those of us in the State of Maryland). MDE ignored this guidance, despite the fact that Neutron's evaluation showed that no member of the public could reasonably be expected to receive more than a few millirem per year from the point at the site boundary where the 500 mrem per year license limit had been exceeded.

XIII.2 Moreover, if MDE would subtract the contribution of natural background radiation so that the measurement truly reflected Neutron's contribution to the total, then Neutron would be under RHP's 500 millirem per year requirement by both your measurement and ours.

XIII.3 Our own dosimetry for the area in question demonstrates compliance, although the first quarter dosimeter was discovered missing and we had to interpolate data for the period.

XIII.4 Under the NVLAP program, a dosimetry provider qualifies by demonstrating an accuracy of ± 25%. As RHP is undoubtedly aware, thermoluminescent dosimetry is subject to random errors and statistical variation. RHP's claim of a 6% excess at a single location should be taken in that context, and may well be an anomalie.

Corrective Action

XIII.5 Despite Neutron's objections to the excessively stringent condition, Neutron continues to try to comply with it. Hopefully, the reorganization of the North Waste Room and the remediation of the area downstream of the rip-rap on the discharge side of the dry pond, which are both contemplated for execution within the next few months, are expected to make significant contributions in this regard. Both projects will be conducted under the supervision of Jeffrey Williams.

XIII.6 However, in evaluating the significance of both the alleged violation and the remedy, it should be noted that no individual is likely to be exposed to as much as 1 mRem per year as a result.

XIII.7 With all due respect, we suggest that you either rescind the citation or explain to us why you consider it to be either important or legal for you to impose a License Condition that is less than 3% of the statutory requirement.

We would appreciate the benefit of a prompt and favorable reply.

Very truly yours,
Neutron Products, Inc.

J. A. Reinschoff, President

10/4/1999ET

NEUTRON PRODUCTS INC

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

ORIGINAL

30 September 1999

Mr. Carl Trump
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Re: MD-31-025-01

Dear Mr. Trump,

I am writing to certify that I conducted the random inspection for the month of August on August 10 and 11, 1999 and that the report is available for your review. In addition, I have enclosed Bob Alexander's monthly report for August, 1999.

In order to fulfill our requirements under License Condition 15C of the new license, I have consulted with Jeffrey Williams, the Radiation Safety Officer for the 01 license. In the month of August, there was one HECM incident exceeding 22,000 dpm. A count of 27,900 dpm was recorded on the afternoon of August 26 and involved employee #515 who had been working in the room behind the hot cell. He used a frisker to determine that the contamination was on his neck. He decontaminated himself to background by washing the affected area. As you are aware, the area behind the hot cell is in a contamination control zone and it is not unexpected that events such as this will occur from time to time. Jeff's evaluation determined that the additional dose to the skin would have been no more than 15 mrem, which is 0.03% of the regulatory limit of 50,000 mrem.

The HECM operated properly during the month, although the print-out of records on August 2 was affected by an earlier power outage. Timely interviews with employees uncovered no unusual HECM events that day.

In accordance with Condition 22.B.2, during the month of August, contaminated soil was found in the drain at the west end of the courtyard (8/10/99) and in the stone baskets at the discharge side of the dry pond (8/4/99). Both areas were subsequently cleaned and the soil and debris placed in a B-25 with other contaminated soil. The off-site survey yielded no findings of contamination.

If you need additional information, please let me know.

Sincerely,
Bill Ransohoff
W.L. Ransohoff

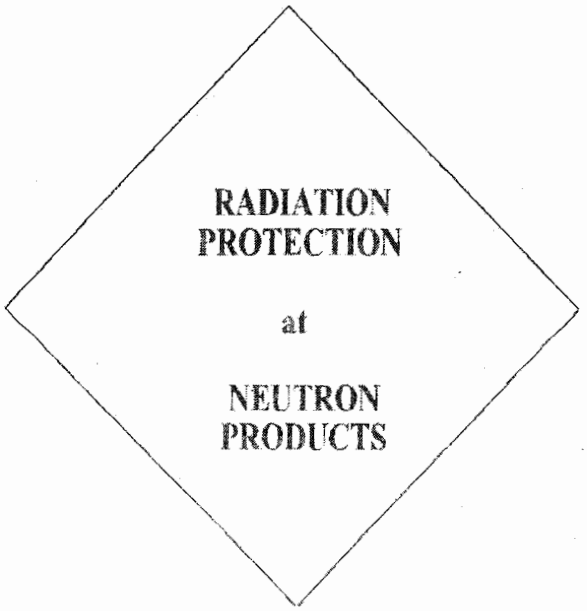
HP CONSULTANT REPORT FOR AUGUST 1999

Introduction

I visited NPI on August 30, 1999, to conduct an audit of the LAA and hold discussions with RSO Jeff Williams. Several improvements in radiation protection were observed, and others are in progress. I did not identify any new problems.

1.0 Improved Containment for Soil

A problem previously mentioned in these pages has been nicely solved. Several very large polypropylene supersacks filled with slightly contaminated soil, stored in the courtyard, have been transferred to new, metallic-walled B-25 containers purchased for that purpose ($600 each). Since the weathered bags were beginning to tear easily, this timely action has prevented any significant release of radioactivity. Also, the soil can now be readily moved from one place to another by forklift, making it available for temporary shielding. Such shielding is used effectively in the courtyard to reduce dose rates both on- and off-site. The problem of "identification tag" fading, previously described, is being resolved as well. A stencil is being prepared which will allow permanent painting of the necessary information on each B-25.



2.0 Protective Clothing

One of the contamination-control methods that I have become accustomed to over the years is a simple technique intended to keep careless people who work in a contaminated area from transferring contamination into areas supposed to remain contamination free. This technique is not employed at NPI. The reason I am calling attention to it here is *not* survey records showing any cause for concern. My reason is primarily precautionary for a problem that has developed elsewhere and could develop here.

The technique is simply: (1) to allow protective clothing to be worn only in work areas where contamination is allowed (already in practice at NPI); and (2) to use distinctive protective clothing colors as the way to quickly identify infractions of this rule. This technique, I believe, is worthy of reconsideration by NPI management.

3.0 Dose Rate Outside LAA

The closet of a large workshop outside the LAA shares a wall with the north waste room. Although this wall provides considerable concrete shielding I noticed that the dose rate posted at the door to the closet is 3 mR/h. Additional shielding (described below) has been constructed and is to be

Prepared by R.E. Alexander, CHP

installed in connection with the reorganization of the north storage room contents.

4.0 Increased Shielding for Radioactive Waste

RSO Jeff Williams, et al., are still preparing for reorganization of north and south waste room contents. This reorganization will provide improved utilization of storage space and reduce courtyard dose rates. New shields to be placed inside the north room, against the back (east) wall, are almost completed. These four L-shaped (6000 lbs each) shadow shields are composed of welded ¼" steel plates, filled with concrete. They will provide 12" of shielding across the entire back wall, to a height of 10'. In addition, 4'-long right-angle extensions at both ends of these shields will provide 6" of shielding, also floor to 10', along the north and south walls.

The initial objectives of this shielding are to permit repositioning of the drum-shields stored in the north room:
(1) without increasing off-site doses to members of the public;
(2) without increasing the dose rates in occupied office areas a short distance beyond and east of the waste storage building;
(3) in a manner to maximize protection for the second-floor lobby;
(4) without increasing the dose rate in the area outside the back wall to a level exceeding 2 mR/h;
(5) without increasing the dose rates in the adjacent weld shop closet.
The shield sections can be readily moved by forklift and will be useful after final disposition of the Co-60.

5.0 Waste Compactor

NPI has submitted an application for a licence amendment to acquire and operate a dry radioactive waste compactor. One is presently available which generates 85K lbs/in^2, providing volume reduction in the range 3-to-1 to 6-to-1. A spring-loaded disk is used to prevent re-expansion before sealing. Jeff Williams thinks that up to ½ of the south-room vault space can be reclaimed using the compactor.

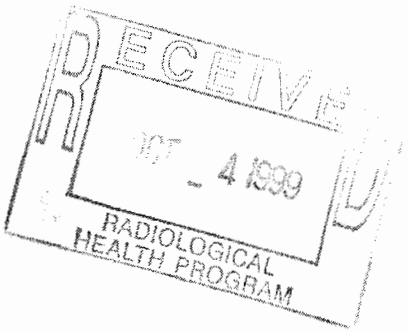
ORIGINAL

6.0 Hot Tool Room

The current plan is to load everything in the hot tool room that is no longer used into a drum-shield and store it in the newly reorganized north waste room.

7.0 "Navy" Source Replacement

Jeff Williams plans to replace the 'Navy' calibration source with a 3- to 5-Ci Co-60 source to be constructed at NPI. The source strength would not be accurately known, but the dose rates at desired locations would be measured using an instrument calibrated with a source traceable to NBS.



MDE
MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore Maryland 21224
(410) 631- 3000 • 1- 800 -633-6101 • http:// www. mde. state. md. us

Parris N. Glendening
Governor

Jane T. Nishida
Secretary

ORIGINAL

JUL 14 1999

CERTIFIED MAIL: NOTICE OF VIOLATION

Jackson A. Ransohoff, President
Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

RE: Radioactive Material License Number: #MD-31-025-01

Dear Mr. Ransohoff:

This letter refers to the radioactive materials inspection conducted by Messrs. Bob Nelson, Alan Jacobson, and Ray Manley of the Maryland Department of the Environment's (MDE) Radiological Health Program (RHP) on March 16, 18, and 19, 1999. The inspection examined radiation safety, compliance with conditions of your license, adherence to procedures and proper maintenance of records, interviews with personnel, general observations, and independent measurements.

During the inspection, certain activities were found to be in violation of the Department's requirements. The findings were either discussed with Messrs. Marvin Turkanis, Jeffrey Williams, and Billy Ransohoff at the licensee management exit interview conducted on March 19, 1999 and with Mr. Jeffery Williams by telephone on May 18, 1999. The violations found are listed in the enclosed "Description of Violations."

In addition to the violations found, the RHP has identified the following programmatic issues and radiation safety concerns:

1. NPI personnel have still not demonstrated National Institute of Standards and Technology (NIST) traceability of your calibrator source (Cobalt-60, M-498, 6.10 millicuries) which they use to calibrate approximately 65 radiation survey meters and 46 self reading dosimeters. This issue of concern was identified during the March 25, 26 and April 2, 1998 radioactive material inspection, and described in the Department's June 30, 1998 letter, and still remains unresolved. Furthermore, NPI personnel could not demonstrate the accuracy of their conductivity meter. Finally, NPI did not possess or use a calibration standard, and a calibration record was not available for inspection.

2. The licensee has still not obtained the permits necessary to begin construction of the courtyard enclosure. Radiation levels at the boundary of the plant and concentrations of cobalt-60 in soils exceed regulatory requirements. NPI has been storing the radioactive waste that was generated as a result of source manufacturing activities. In fact, NPI has only shipped for disposal, a small fraction of the radioactive waste that it has generated over the past three decades.

3. NPI continues to have unresolved compliance issues and radiation safety concerns regarding all four of your Maryland radioactive materials licenses. Furthermore, NPI does not have a full time Health Physicist on staff and your Health Physics Consultant, who only spends a few days per month on site, has not been effective in resolving these issues and concerns. The Department is concerned because it appears that NPI management does not have the technical expertise, financial resources and commitment towards radiation safety to effectively implement critical aspects of an adequate radiation protection program necessary to establish compliance with State Regulations and license conditions.

4. The Limited Access Area (LAA) of the plant, equipment, tools, storm water system, dry pond, adjacent railroad property and soils, both on and off site, are contaminated with cobalt-60. The RHP estimates that it will cost millions of dollars to remediate contaminated areas of the plant and property. Your company filed for bankruptcy protection in 1986 and evidently, your debts still remain unresolved. NPI has still not met financial assurance requirements for decommissioning in regards to three of your Maryland radioactive materials licenses to which the regulation pertains. Finally, your company does not maintain adequate documents which describe your radioactive waste management plan or plan of corrective action regarding the dozens of ongoing violations of Maryland radiation protection regulations and programmatic radiation safety concerns.

As a result of these findings, you are required to respond to this letter and the enclosed "Description of Violations" within twenty (20) calendar days of your receipt of this notice. Written statements should be provided for each of the violations indicating:

a. Corrective steps, which have been or will be taken by you to remedy the present violations and the results achieved or anticipated;

b. Corrective steps which will be taken to avoid further violations, who will undertake these steps, and who will supervise them; and

c. The date when full compliance will be achieved.

Failure to provide these statements in the required time frame may result in the Department taking escalated enforcement action under Maryland Radiation Regulations to:

(a) modify, revoke or suspend your license,

ORIGINAL

(b) issue a Departmental Order under the Annotated Code of Maryland, Environment Article, Sections 1-301 and 8-101 through 8-601, and

(c) seek an administrative penalty of up to $1,000 per violation, per day [Section 8-510(b)], or a civil penalty in an amount not exceeding $10,000 per violation, per day [Section 8-509(b)].

The serious nature and the extent of the deficiencies noted with your radiation safety program requires that you schedule an enforcement conference at the Agency's headquarters no later than thirty (30) days after your receipt of this letter, at which time, upon review of your compliance response, remedial actions can fully be discussed. Please indicate in your response who will be attending the meeting representing NPI.

Please be reminded that Departmental compliance letters and licensee responses shall be posted pursuant to the requirements of the Maryland regulations, Section J.11(d) titled, "Posting of Notices to Workers." Should you have any questions concerning this letter, please contact Messrs. Carl E. Trump, Jr., Bob Nelson, or me, at (410) 631-3301.

Sincerely,

Roland G. Fletcher, Environmental Manager
Radiological Health Program

CET
RGF/CET/RKN/cc

Enclosure: Description of Violations

DESCRIPTION OF VIOLATIONS

Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

RE: Radioactive Material License Number: MD-31-025-01

Certain activities conducted under your license were found to be in violation of the Code of Maryland Regulations 26.12.01.01 titled, "Regulations for Control of Ionizing Radiation." These violations are presented below:

1. Section D.501 titled "Surveys and Monitoring-General" requires in part that each licensee shall conduct surveys that are necessary to evaluate radiation levels and concentrations of radioactive material. License amendment 33, Item N dated May 23, 1989 requires in part that all soils exhibiting levels of radioactivity in excess of 8 picocuries per gram above background, for an equivalent area of 30 ft by 30 ft wherever found, shall be removed and properly stored/disposed of by the licensee. The gamma exposure rate at one meter above the ground surface shall not exceed 10 microR/hr above background for an area greater than 30 ft by 30 ft and shall not exceed 20 microR/hr above background for any discrete area.

   Contrary to the requirements of Section D. 501 and license amendment 33, the analyses of soil samples collected by RHP Inspectors from the dry pond and the adjacent railroad property collected on March 16 and 18, 1999 indicate that the soil concentration for cobalt-60 contamination exceeded 8.0 picocuries per gram. These contaminated areas of the dry pond and the adjacent properties are greater than 30 ft by 30 ft. The licensee failed to conduct soil samples and analysis to accurately determine the status of compliance during the years of 1997 and 1998. During the inspection, RHP Inspectors collected random soil samples from the far side of the dry pond and the adjacent railroad property. The samples were analyzed by the Maryland Laboratory Administration's Radiation Chemistry Laboratory who determined the cobalt-60 soil concentrations to be 186.6 and 101.4 picocuries per gram respectively. The licensee has still not removed soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0 picocurie per gram soil concentration limit. The Stipulation and Settlement (Civil Case No. 76639 in the Circuit Court for Montgomery County) dated January 3, 1994 required the licensee to clean all contaminated soils areas by June 15, 1994. The licensee failed to meet this deadline and is refusing to remediate this property. Furthermore, the dose rate at one meter above the ground surfaces of the dry pond and adjacent areas exceeds the

dose rate limit of 10 micro R/hr above background. The RHP has determined the dose rate at two locations at the boundary of the dry pond to be approximately 531 millirem per year and 342 millirem per year. The fence surrounding the dry pond was constructed such that it does not prevent or adequately discourage unauthorized access. During the April 1997 inspection, the RHP Inspectors found evidence that soil contaminated with cobalt-60 was removed by an unknown person other than the licensee. The licensee did not submit the design to the RHP for approval prior to construction and this issue still remains unresolved. This is a **REPEAT** and ongoing violation.

2. Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means necessary to maintain radiation exposures to levels as low as reasonably achievable.

   Contrary to Section D.101, the licensee failed to maintain radiation exposures to members of the public living near the plant to levels as low as reasonably achievable (ALARA). This is a **REPEAT** violation from previous inspections. The RHP measured approximately 202 millirem per year at the portico of a resident's home, 353.0 millirem per year on the lawn of a nearby resident and 150 millirem per year next to the home located on this property. The RHP has identified the waste storage rooms as the source of these elevated radiation levels in the community. NPI continues to store quantities of radioactive waste. In fact, the licensee has only shipped for disposal, a small fraction of the radioactive waste that they have generated over the past three decades.

3. Section D.501, titled, "Surveys and Monitoring-General" requires in part that each licensee make or cause to be made surveys as may be necessary to evaluate the extent of the radiation hazards that may be present and to establish compliance with these regulations.

   Contrary to Section D.501, the licensee failed to conduct radiological surveys in the courtyard area of the LAA sufficient to determine the presence of leaf debris, which contained elevated levels of cobalt-60. RHP Inspectors collected a sample of this debris, which contained a cobalt-60 concentration of approximately 7704.8 picocuries per gram. The RHP has long identified this area as a potential release point where radioactive materials exit the plant in an uncontrolled manner.

4. Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means to maintain radiation releases of radioactive material to levels as low as reasonably achievable.

   Contrary to Section D.101, the licensee failed to use all means necessary to control releases of radioactive material from the Limited Access Area (LAA) to levels as low as reasonably achievable (ALARA). Cobalt-60 contamination continues to be found outside of NPI's boundary thus substantiating the loss of control of a hazardous

radionucide. Two soil samples that inspectors collected from the unrestricted side of the LAA fence contained cobalt-60 soil concentrations measured to be 167.7 and 103.5 picocuries per gram. Soil samples that were collected by the railroad tracks near the road and adjacent to the fence on the outside of the drypond measured 96.3 and 21.7 picocuries per gram respectively. The soils in the dry pond and adjacent railroad property contain concentrations of cobalt-60 that exceed regulatory requirements. This is a **REPEAT** and ongoing violation.

5. License amendment 33, Items C.1 and C.4 requires in part that a Department approved Health Physics Consultant conduct monthly evaluations and submit monthly reports to the Department based upon such evaluations. Section C.31 titled "Specific Terms and Conditions of Licenses" requires in part that each licensee shall be subject to all rules, regulations and orders of the Agency.

   Contrary to Section C.31 and license amendment 33, the licensee failed to submit the Department Approved Health Physics Consultant's monthly reports to the Agency during the third and fourth quarters of 1998 as required. This is a **REPEAT** violation from prior inspections.

6. Section D.501 titled "Surveys and Monitoring-General" and license amendment 33, item D.6 requires in part that the licensee shall conduct monthly floor monitoring within the entire facility.

   Contrary to Section C.31, Section D.501 and license amendment 33, monthly floor surveys of the plant were not conducted in August and September 1998.

7. Section D.1103 titled, "Records of Surveys" requires in part that each licensee shall maintain records of the results of radiation surveys required to demonstrate compliance with regulatory limits and item D.6.of license amendment 33:

   Contrary to Section C.31 and D.1103, records of the floor monitoring surveys, which were conducted during the months of March-July, 1998, were not maintained or available for inspection.

8. License Amendment 33, Item I and NPI's Random Inspection Program dated May 14, 1993 requires in part that the Radiation Safety Officer implement random inspections of the LAA and unrestricted areas on a monthly basis.

   Contrary to Section C.31 and license amendment 33, a monthly audit of the LAA was not conducted as required for August 1998. This is a **REPEAT** violation from the April 29-30, 1997 Departmental Inspection. The RHP is further concerned that the Random Inspection Program is still not effective in resolving items of noncompliance and radiation safety concerns.

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9. License Amendment 33 Item D.8 and NPI's one kilometer survey plan requires in part that the licensee conduct monthly surveys of residential properties located within the one kilometer radius of the plant.

Contrary to Section C.31 and the one kilometer survey plan approved by the RHP and license amendment 33, radiological surveys of residential properties located within the one kilometer radius of the plant were not conducted in June and July 1998. Furthermore, the majority of the residential properties in this area have never been surveyed for radiological contamination.

10. Section D.401 titled, "Testing for Leakage or Contamination of Sealed Sources", and license condition 12 requires, in part, that each sealed source with a half-life greater than 30 days be leak tested at intervals not to exceed six months.

Contrary to the requirements of Section D.401 and License Condition 12, the licensee failed to test each sealed source for leakage or contamination within the required six (6) month frequency. Specifically, the licensee did not conduct any leak tests of their sealed source inventory (sources not transferred to an authorized recipient) during the year of 1998, a time period greater than six months. Additionally, leak tests were not conducted in 1999 until the day the inspectors requested access to these records for examination.

11. Section D. 1104 titled "Records of Tests for Leakage or Contamination of Sealed Sources" requires in part that records of leak tests required by Section. D.401 shall be maintained for inspection by the Agency. Section A.4 titled, "Records" requires in part that each licensee shall maintain records showing the receipt, inventory, transfer, and disposal of all sources of radiation. Section A.5 titled "Inspections" requires in part that each licensee shall make available, upon inspection by the Agency, records maintained pursuant to these regulations.

Contrary to Sections D.1104, A.4 and A.5, records of leak tests, which were conducted during the years of 1990 to 1997, were not available for inspection. Additionally, records of shipments, receipt and transfer of radioactive sources were not adequate and readily available for inspection. Inventory of radioactive materials was maintained in a computerized database, which evidently was not updated and maintained on a regular or frequent basis. As a result, these records were not readily available for inspection in a timely manner in that NPI spent several hours creating material inventory record when it was requested by RHP inspectors for review.

12. Section D.1108 titled, "Records of Dose to Individual Members of the Public" requires in part that each licensee maintains records sufficient to demonstrate compliance with Section D.301 which describes the dose limit for individual members of the public.

Contrary to Section D.1108, the licensee failed to maintain records sufficient to demonstrate compliance with the 100 millirem per year dose limit for individual members of the public for the year of 1998. At the exit interview, the Radiation Safety Officer described the manner in which NPI can demonstrate compliance with Section D.301 titled, "Dose Limits for Individual Members of the Public". However, a written document describing this evaluation or a record demonstrating compliance by measurement, calculation or appropriate simulation model, using recent radiation monitoring data, was not available for review during the inspection.

13. License amendment 33, item 13.L dated May 23, 1989 requires in part that the radiation levels at the boundary of the facility shall not exceed 500 millirem per year.

Contrary to Section C.31 and license amendment 33, the licensee failed to comply with the 500 millirem per year boundary limit. The RHP measured 531 millirem at the fence of the dry pond for the year of 1998.

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2500 Broening Highway
Baltimore, Maryland 21224

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JUL 19 1999

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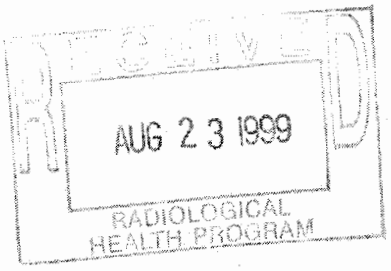
neutron products inc

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

18 August 1999

Mr. Carl E. Trump, Jr.
Program Manager
Radioactive Materials Licensing
and Compliance Division
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224



Dear Mr. Trump:

I am writing to inform you that we intend to store packaged contaminated soil in locked sea containers outside the Limited Access Area. The dose rate in any unrestricted area around the containers will not exceed 2 mrem/hr, as specified in COMAR D.301.a.ii, and the containers will be posted in accordance with COMAR D.902.

As you are aware, the soil itself does not present any radiological hazard and its activity is so low that we routinely use it for shielding purposes. The storage of contaminated soil in this manner is in the interest of Neutron, RHP and the community because it provides for efficient storage of contaminated soil generated by past and future remediations of the dry pond, rail siding, etc. Furthermore, with several drums and B-25's removed from the courtyard, we will be better able to effectively police the area for leaves, dirt, and debris, which have been of great concern to RHP in the past.

Although we believe this storage to be consistent with the regulations and our existing license, Condition 21.B.1 of the proposed license provides that:

> "Any radioactive waste storage, either temporary or long term shall only be located in the LAA with the only exception being the underground waste water storage tank..."

We do not believe this provision was intended to address contaminated soil. Please confirm that our intended storage of contaminated soil in the manner proposed herein is consistent with the proposed license.

Sincerely,

NEUTRON PRODUCTS, INC.

BW R.J24

W.L. Ransohoff

Pls. File 9/27/99 EC

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MARYLAND DEPARTMENT OF THE ENVIRONMENT
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Parris N. Glendening
Governor

Jane T. Nishida
Secretary

SEP 24 1999

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, MD 20842

Dear Mr. Ransohoff:

This letter is in response to Mr. W.L. Ransohoff's August 13, 1999 letter that describes Neutron Products Incorporated's (NPI) intent to store soil contaminated with cobalt-60 in areas outside of the Limited Access Area (LAA). The Radiological Health Program has carefully reviewed your intended storage methods and determined that it would be in violation of License Condition 21.B (1) of your Maryland Radioactive Materials License.

Since this soil is contaminated with cobalt-60, licensed radioactive material, the RHP considers it to be radioactive waste. License Condition 21.B (1) states, in part, that any radioactive waste shall only be stored in the LAA. License Condition 21 further states that this type of radioactive waste may not be stored for more than two years and copies of the radioactive waste shipment records shall be provided to the RHP and the Hazardous and Solid Waste Administration within 14 days of the shipment dates. Finally, License Condition 21.B requires NPI to submit a comprehensive plan for the disposal of all low - level radioactive waste within 90 days of the issuance of the license.

If you have any questions concerning this letter, please contact Messrs. Alan Jacobson, Ray Manley or me at 410-631-3301. You may also reach my office toll free by dialing 1-800-633-6101 and requesting extension 3301.

Sincerely,

Carl E. Trump Jr.

Carl E. Trump, Jr., Program Manager
Radioactive Materials Licensing and
Compliance Division

RGF/CET/ADJ/edjg

MDE-RHP Fax:410-631-3198

** Transmit Conf.Report **

Sep 27 '99 14:43

MDE-RHP	---> 913013495007
No.	0012
Mode	NORMAL
Time	1'30"
Pages	1 Page(s)
Result	T.4.1

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MARYLAND DEPARTMENT OF THE ENVIRONMENT
Air & Radiation Management Administration
Radiological Health Program

Facsimile Transmittal Sheet

TO: Bill Ranschoff
NPI

FROM: Edwina

MDE-ARMA-Radiological Health Program
2500 Broening Highway ♦ Baltimore MD 21224
410-631-3300 [phone] ♦ 410-631-3198 [fax]
or 1-800-633-6101 (in Maryland only)

DATE: 9/27/99

 # OF PAGES (including this sheet): 2

COMMENTS: Original is in the mail.

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Governor

Jane T. Nishida
Secretary

AUG 24 1999

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mount Ephraim Road
P.O. Box 68
Dickerson Maryland 20842

RE: Response to your July 26, 1999 letter

Dear Mr. Ransohoff:

Enclosed please find copies of the information you requested with regard to the assessed Administrative penalty of $15,700. The information has been assembled with the intent to clarify matters. .

Maryland Law requires the Department to charge xeroxing fees for the material at .22 per copy (112 copies). An invoice in the amount of $24.64 will follow.

I hope this information will be helpful to you. If you have any further questions, you can contact Alan Jacobson or me at (410) 631-3300 or toll free 1-(800) 633-6101 and requesting extension 3300.

Sincerely,

Carl E. Trump, Jr.

Carl E. Trump, Jr., Program Manager
Radioactive Materials Licensing and
Compliance Division

CET/cc

Enclosure(s): Copies of FOIA Information Request

MDE

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Parris N. Glendening
Governor

AUG 24 1999

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Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	AUG 24 1999

PS Form 3800, April 1995

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mt. Ephraim Road, P.O. Box 68
Dickerson Maryland 20842

RE: NOTICE OF CIVIL PENALTY SETTLEMEN
[RAM-99-02]
Radioactive Materials License Number:
#MD-31-025-01

Dear Mr. Ransohoff:

This letter serves as a reminder that a $5,000.00 civil penalty settlement payment is due to the Maryland Department of the Environment (MDE) by September 1, 1999 as a result of the decision rendered by the Montgomery County, Maryland Circuit Court's "Stipulation and Settlement"-Civil No. 76639. In addition, an interest amount of $300.00 is assessed based on the balance of $5,000.00. The total amount due is $5,300.00 upon receipt of this notice. Please make your check (invoice enclosed) payable to: Radiation Control Fund and mail to:

Maryland Department of the Environment
Radiation Control Fund
P.O. Box 2198
Baltimore, Maryland 21203-2198

Should there be any questions in this matter, please contact Mr. Carl E. Trump, Jr., or me at (410) 631-3300. You may also reach our office by dialing 1-800-631-6101 and requesting extension 3300.

Sincerely,

Roland G. Fletcher, Manager
Radiological Health Program

CET
RGF/CET/cc

Enclosure: Invoice

cc: Attorney General's Office
Debbie Kemp
Reader File
Merrylin Zaw-Mon

10/29/99 CST

NEUTRON PRODUCTS INC

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

October 21, 1999

Mr. Roland G. Fletcher, Program Manager
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

VIA FAX: 410/631-3198

Re: License MD-31-025-01
Request for Source Transfer from Columbia Memorial dated August 20, 1999
Request for Source Transfer from University Hospital dated August 20, 1999
Request for Source Transfer from Baptist Memorial Hospital dated August 31, 1999
Request for Source Transfers from St. Luke's Medical Centers dated September 21, 1999
Request for Source Transfer from United Hospital Center dated September 23, 1999

Dear Mr. Fletcher:

Per your request during our telephone conversation of yesterday afternoon, this is to advise that:

- Neutron is planning to remove the teletherapy units from the listed facilities;
- all of the units, except the one at Baptist Memorial Hospital, contain depleted uranium;
- none of the source holders should contain depleted uranium;
- Neutron is planning to transfer the depleted uranium in the units to our NRC license and is not planning to bring the units or the depleted uranium to Neutron's Dickerson facility; and,
- in no event will the license limit for depleted uranium at Dickerson be exceeded.

If you have any further questions, please call me. If there are no questions, we look forward to promptly receiving approval to transfer the sources per the above requests.

Sincerely,
NEUTRON PRODUCTS, INC.

Marvin M. Turkanis
Vice President

MMT/afc

Z 402 151 293 ORIGINAL

US Postal Service
Receipt for Certified Mail
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Jackson A. Ransohoff, President
Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

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PS Form 3800, April 1995

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SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

94-025-A NOV

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Jackson A. Ransohoff, President
Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

4a. Article Number Z 402 151 293

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☑ Return Receipt for Merchandise ☐ COD

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)
X Phyllis A Sulle

7. Date of Delivery 7-16-96

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994 LKN 102595-96-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

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Parris N. Glendening
Governor

Jane T. Nishida
Secretary

JUL 14 1999

CERTIFIED MAIL: NOTICE OF VIOLATION

Jackson A. Ransohoff, President
Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

RE: Radioactive Material License Number: #MD-31-025-01

Dear Mr. Ransohoff:

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During the inspection, certain activities were found to be in violation of the Department's requirements. The findings were either discussed with Messrs. Marvin Turkanis, Jeffrey Williams, and Billy Ransohoff at the licensee management exit interview conducted on March 19, 1999 and with Mr. Jeffery Williams by telephone on May 18, 1999. The violations found are listed in the enclosed "Description of Violations."

In addition to the violations found, the RHP has identified the following programmatic issues and radiation safety concerns:

1. NPI personnel have still not demonstrated National Institute of Standards and Technology (NIST) traceability of your calibrator source (Cobalt-60, M-498, 6.10 millicuries) which they use to calibrate approximately 65 radiation survey meters and 46 self reading dosimeters. This issue of concern was identified during the March 25, 26 and April 2, 1998 radioactive material inspection, and described in the Department's June 30, 1998 letter, and still remains unresolved. Furthermore, NPI personnel could not demonstrate the accuracy of their conductivity meter. Finally, NPI did not possess or use a calibration standard, and a calibration record was not available for inspection.

ORIGINAL

2. The licensee has still not obtained the permits necessary to begin construction of the courtyard enclosure. Radiation levels at the boundary of the plant and concentrations of cobalt-60 in soils exceed regulatory requirements. NPI has been storing the radioactive waste that was generated as a result of source manufacturing activities. In fact, NPI has only shipped for disposal, a small fraction of the radioactive waste that it has generated over the past three decades.

3. NPI continues to have unresolved compliance issues and radiation safety concerns regarding all four of your Maryland radioactive materials licenses. Furthermore, NPI does not have a full time Health Physicist on staff and your Health Physics Consultant, who only spends a few days per month on site, has not been effective in resolving these issues and concerns. The Department is concerned because it appears that NPI management does not have the technical expertise, financial resources and commitment towards radiation safety to effectively implement critical aspects of an adequate radiation protection program necessary to establish compliance with State Regulations and license conditions.

4. The Limited Access Area (LAA) of the plant, equipment, tools, storm water system, dry pond, adjacent railroad property and soils, both on and off site, are contaminated with cobalt-60. The RHP estimates that it will cost millions of dollars to remediate contaminated areas of the plant and property. Your company filed for bankruptcy protection in 1986 and evidently, your debts still remain unresolved. NPI has still not met financial assurance requirements for decommissioning in regards to three of your Maryland radioactive materials licenses to which the regulation pertains. Finally, your company does not maintain adequate documents which describe your radioactive waste management plan or plan of corrective action regarding the dozens of ongoing violations of Maryland radiation protection regulations and programmatic radiation safety concerns.

As a result of these findings, you are required to respond to this letter and the enclosed "Description of Violations" within twenty (20) calendar days of your receipt of this notice. Written statements should be provided for each of the violations indicating:

a. Corrective steps, which have been or will be taken by you to remedy the present violations and the results achieved or anticipated;

b. Corrective steps which will be taken to avoid further violations, who will undertake these steps, and who will supervise them; and

c. The date when full compliance will be achieved.

Failure to provide these statements in the required time frame may result in the Department taking escalated enforcement action under Maryland Radiation Regulations to:

(a) modify, revoke or suspend your license,

(b) issue a Departmental Order under the Annotated Code of Maryland, Environment Article, Sections 1-301 and 8-101 through 8-601, and

(c) seek an administrative penalty of up to $1,000 per violation, per day [Section 8-510(b)], or a civil penalty in an amount not exceeding $10,000 per violation, per day [Section 8-509(b)].

The serious nature and the extent of the deficiencies noted with your radiation safety program requires that you schedule an enforcement conference at the Agency's headquarters no later than thirty (30) days after your receipt of this letter, at which time, upon review of your compliance response, remedial actions can fully be discussed. Please indicate in your response who will be attending the meeting representing NPI.

Please be reminded that Departmental compliance letters and licensee responses shall be posted pursuant to the requirements of the Maryland regulations, Section J.11(d) titled, "Posting of Notices to Workers." Should you have any questions concerning this letter, please contact Messrs. Carl E. Trump, Jr., Bob Nelson, or me, at (410) 631-3301.

Sincerely,

Roland G. Fletcher, Environmental Manager
Radiological Health Program

CET
RGF/CET/RKN/cc

Enclosure: Description of Violations

ORIGINAL

DESCRIPTION OF VIOLATIONS

Neutron Products Inc.
22301 Mount Ephraim Road
Dickerson, Maryland 20842

RE: Radioactive Material License Number: MD-31-025-01

Certain activities conducted under your license were found to be in violation of the Code of Maryland Regulations 26.12.01.01 titled, "Regulations for Control of Ionizing Radiation." These violations are presented below:

1. Section D.501 titled "Surveys and Monitoring-General" requires in part that each licensee shall conduct surveys that are necessary to evaluate radiation levels and concentrations of radioactive material. License amendment 33, Item N dated May 23, 1989 requires in part that all soils exhibiting levels of radioactivity in excess of 8 picocuries per gram above background, for an equivalent area of 30 ft by 30 ft wherever found, shall be removed and properly stored/disposed of by the licensee. The gamma exposure rate at one meter above the ground surface shall not exceed 10 microR/hr above background for an area greater than 30 ft by 30 ft and shall not exceed 20 microR/hr above background for any discrete area.

   Contrary to the requirements of Section D. 501 and license amendment 33, the analyses of soil samples collected by RHP Inspectors from the dry pond and the adjacent railroad property collected on March 16 and 18, 1999 indicate that the soil concentration for cobalt-60 contamination exceeded 8.0 picocuries per gram. These contaminated areas of the dry pond and the adjacent properties are greater than 30 ft by 30 ft. The licensee failed to conduct soil samples and analysis to accurately determine the status of compliance during the years of 1997 and 1998. During the inspection, RHP Inspectors collected random soil samples from the far side of the dry pond and the adjacent railroad property. The samples were analyzed by the Maryland Laboratory Administration's Radiation Chemistry Laboratory who determined the cobalt-60 soil concentrations to be 186.6 and 101.4 picocuries per gram respectively. The licensee has still not removed soil contaminated with cobalt-60 from the adjacent railroad property to establish compliance with the 8.0 picocurie per gram soil concentration limit. The Stipulation and Settlement (Civil Case No. 76639 in the Circuit Court for Montgomery County) dated January 3, 1994 required the licensee to clean all contaminated soils areas by June 15, 1994. The licensee failed to meet this deadline and is refusing to remediate this property. Furthermore, the dose rate at one meter above the ground surfaces of the dry pond and adjacent areas exceeds the

dose rate limit of 10 micro R/hr above background. The RHP has determined the dose rate at two locations at the boundary of the dry pond to be approximately 531 millirem per year and 342 millirem per year. The fence surrounding the dry pond was constructed such that it does not prevent or adequately discourage unauthorized access. During the April 1997 inspection, the RHP Inspectors found evidence that soil contaminated with cobalt-60 was removed by an unknown person other than the licensee. The licensee did not submit the design to the RHP for approval prior to construction and this issue still remains unresolved. This is a **REPEAT** and ongoing violation.

2. Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means necessary to maintain radiation exposures to levels as low as reasonably achievable.

   Contrary to Section D.101, the licensee failed to maintain radiation exposures to members of the public living near the plant to levels as low as reasonably achievable (ALARA). This is a **REPEAT** violation from previous inspections. The RHP measured approximately 202 millirem per year at the portico of a resident's home, 353.0 millirem per year on the lawn of a nearby resident and 150 millirem per year next to the home located on this property. The RHP has identified the waste storage rooms as the source of these elevated radiation levels in the community. NPI continues to store quantities of radioactive waste. In fact, the licensee has only shipped for disposal, a small fraction of the radioactive waste that they have generated over the past three decades.

3. Section D.501, titled, "Surveys and Monitoring-General" requires in part that each licensee make or cause to be made surveys as may be necessary to evaluate the extent of the radiation hazards that may be present and to establish compliance with these regulations.

   Contrary to Section D.501, the licensee failed to conduct radiological surveys in the courtyard area of the LAA sufficient to determine the presence of leaf debris, which contained elevated levels of cobalt-60. RHP Inspectors collected a sample of this debris, which contained a cobalt-60 concentration of approximately 7704.8 picocuries per gram. The RHP has long identified this area as a potential release point where radioactive materials exit the plant in an uncontrolled manner.

4. Section D.101, titled "Radiation Protection Programs" requires in part that each licensee shall use all means to maintain radiation releases of radioactive material to levels as low as reasonably achievable.

   Contrary to Section D.101, the licensee failed to use all means necessary to control releases of radioactive material from the Limited Access Area (LAA) to levels as low as reasonably achievable (ALARA). Cobalt-60 contamination continues to be found outside of NPI's boundary thus substantiating the loss of control of a hazardous

radionucide. Two soil samples that inspectors collected from the unrestricted side of the LAA fence contained cobalt-60 soil concentrations measured to be 167.7 and 103.5 picocuries per gram. Soil samples that were collected by the railroad tracks near the road and adjacent to the fence on the outside of the drypond measured 96.3 and 21.7 picocuries per gram respectively. The soils in the dry pond and adjacent railroad property contain concentrations of cobalt-60 that exceed regulatory requirements. This is a **REPEAT** and ongoing violation.

5. License amendment 33, Items C.1 and C.4 requires in part that a Department approved Health Physics Consultant conduct monthly evaluations and submit monthly reports to the Department based upon such evaluations. Section C.31 titled "Specific Terms and Conditions of Licenses" requires in part that each licensee shall be subject to all rules, regulations and orders of the Agency.

   Contrary to Section C.31 and license amendment 33, the licensee failed to submit the Department Approved Health Physics Consultant's monthly reports to the Agency during the third and fourth quarters of 1998 as required. This is a **REPEAT** violation from prior inspections.

6. Section D.501 titled "Surveys and Monitoring-General" and license amendment 33, item D.6 requires in part that the licensee shall conduct monthly floor monitoring within the entire facility.

   Contrary to Section C.31, Section D.501 and license amendment 33, monthly floor surveys of the plant were not conducted in August and September 1998.

7. Section D.1103 titled, "Records of Surveys" requires in part that each licensee shall maintain records of the results of radiation surveys required to demonstrate compliance with regulatory limits and item D.6.of license amendment 33:

   Contrary to Section C.31 and D.1103, records of the floor monitoring surveys, which were conducted during the months of March-July, 1998, were not maintained or available for inspection.

8. License Amendment 33, Item I and NPI's Random Inspection Program dated May 14, 1993 requires in part that the Radiation Safety Officer implement random inspections of the LAA and unrestricted areas on a monthly basis.

   Contrary to Section C.31 and license amendment 33, a monthly audit of the LAA was not conducted as required for August 1998. This is a **REPEAT** violation from the April 29-30, 1997 Departmental Inspection. The RHP is further concemed that the Random Inspection Program is still not effective in resolving items of noncompliance and radiation safety concems.

9. License Amendment 33 Item D.8 and NPI's one kilometer survey plan requires in part that the licensee conduct monthly surveys of residential properties located within the one kilometer radius of the plant.

Contrary to Section C.31 and the one kilometer survey plan approved by the RHP and license amendment 33, radiological surveys of residential properties located within the one kilometer radius of the plant were not conducted in June and July 1998. Furthermore, the majority of the residential properties in this area have never been surveyed for radiological contamination.

10. Section D.401 titled, "Testing for Leakage or Contamination of Sealed Sources", and license condition 12 requires, in part, that each sealed source with a half-life greater than 30 days be leak tested at intervals not to exceed six months.

Contrary to the requirements of Section D.401 and License Condition 12, the licensee failed to test each sealed source for leakage or contamination within the required six (6) month frequency. Specifically, the licensee did not conduct any leak tests of their sealed source inventory (sources not transferred to an authorized recipient) during the year of 1998, a time period greater than six months. Additionally, leak tests were not conducted in 1999 until the day the inspectors requested access to these records for examination.

11. Section D. 1104 titled "Records of Tests for Leakage or Contamination of Sealed Sources" requires in part that records of leak tests required by Section. D.401 shall be maintained for inspection by the Agency. Section A.4 titled, "Records" requires in part that each licensee shall maintain records showing the receipt, inventory, transfer, and disposal of all sources of radiation. Section A.5 titled "Inspections" requires in part that each licensee shall make available, upon inspection by the Agency, records maintained pursuant to these regulations.

Contrary to Sections D.1104, A.4 and A.5, records of leak tests, which were conducted during the years of 1990 to 1997, were not available for inspection. Additionally, records of shipments, receipt and transfer of radioactive sources were not adequate and readily available for inspection. Inventory of radioactive materials was maintained in a computerized database, which evidently was not updated and maintained on a regular or frequent basis. As a result, these records were not readily available for inspection in a timely manner in that NPI spent several hours creating material inventory record when it was requested by RHP inspectors for review.

12. Section D.1108 titled, "Records of Dose to Individual Members of the Public" requires in part that each licensee maintains records sufficient to demonstrate compliance with Section D.301 which describes the dose limit for individual members of the public.

Contrary to Section D.1108, the licensee failed to maintain records sufficient to demonstrate compliance with the 100 millirem per year dose limit for individual members of the public for the year of 1998. At the exit interview, the Radiation Safety Officer described the manner in which NPI can demonstrate compliance with Section D.301 titled, "Dose Limits for Individual Members of the Public". However, a written document describing this evaluation or a record demonstrating compliance by measurement, calculation or appropriate simulation model, using recent radiation monitoring data, was not available for review during the inspection.

13. License amendment 33, item 13.L dated May 23, 1989 requires in part that the radiation levels at the boundary of the facility shall not exceed 500 millirem per year.

Contrary to Section C.31 and license amendment 33, the licensee failed to comply with the 500 millirem per year boundary limit. The RHP measured 531 millirem at the fence of the dry pond for the year of 1998.

KRK 1/5/[illegible]

ORIGINAL

neutron products inc
22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

30 December 1999

Mr. Carl Trump
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Re: MD-31-025-01

Dear Mr. Trump,

I am writing to certify that I conducted the random inspection for the month of November on November 30, 1999 and that the report is available for your review. I have also enclosed Bob Alexander's monthly report for November, 1999.

In order to fulfill our requirements under License Condition 15C of the new license, I have consulted with Jeffrey Williams, the Radiation Safety Officer for the 01 license. In the month of November, there was one HECM incident exceeding 22,000 dpm. It occurred on November 23 and was found on Matt Repp's elbow. The contamination totalled 25,200 dpm and was removed by washing the effected area.

In accordance with Condition 22.B.2, during the month of November, contaminated leaves and/or soil was found on the roof of the LAA, in the stone trap, in and around the dry pond and in areas downstream thereof.

Only a small amount of dirt and leaves was removed from the LAA roof primarily because the roof was still relatively clean from previous leaf/soil removal efforts. The material has been stored in LAA as radwaste. The survey and removal were performed 11/30/99.

The clinoptilolite in the stone trap and in the dry pond discharge was washed and returned to service. The dirt which was washed off of the clinoptilolite was placed in the LAA as radwaste. The remediation was performed on 11/27 and 11/28.

On November 18, 19, and 23 significant remediation was conducted on the dry pond and on the area downstream thereof (both inside and outside of the fence - see the attached drawing for specific areas remediated). More than 500 cubic feet of soil was removed and it is now stored in the LAA as radwaste. As is customary with the contaminated soil which we remove, the soil is so low in activity that it provides a useful purpose as a shielding material within the LAA.

The off-site survey for the month of November was performed on property not previously surveyed by Neutron and yielded no areas of contamination.

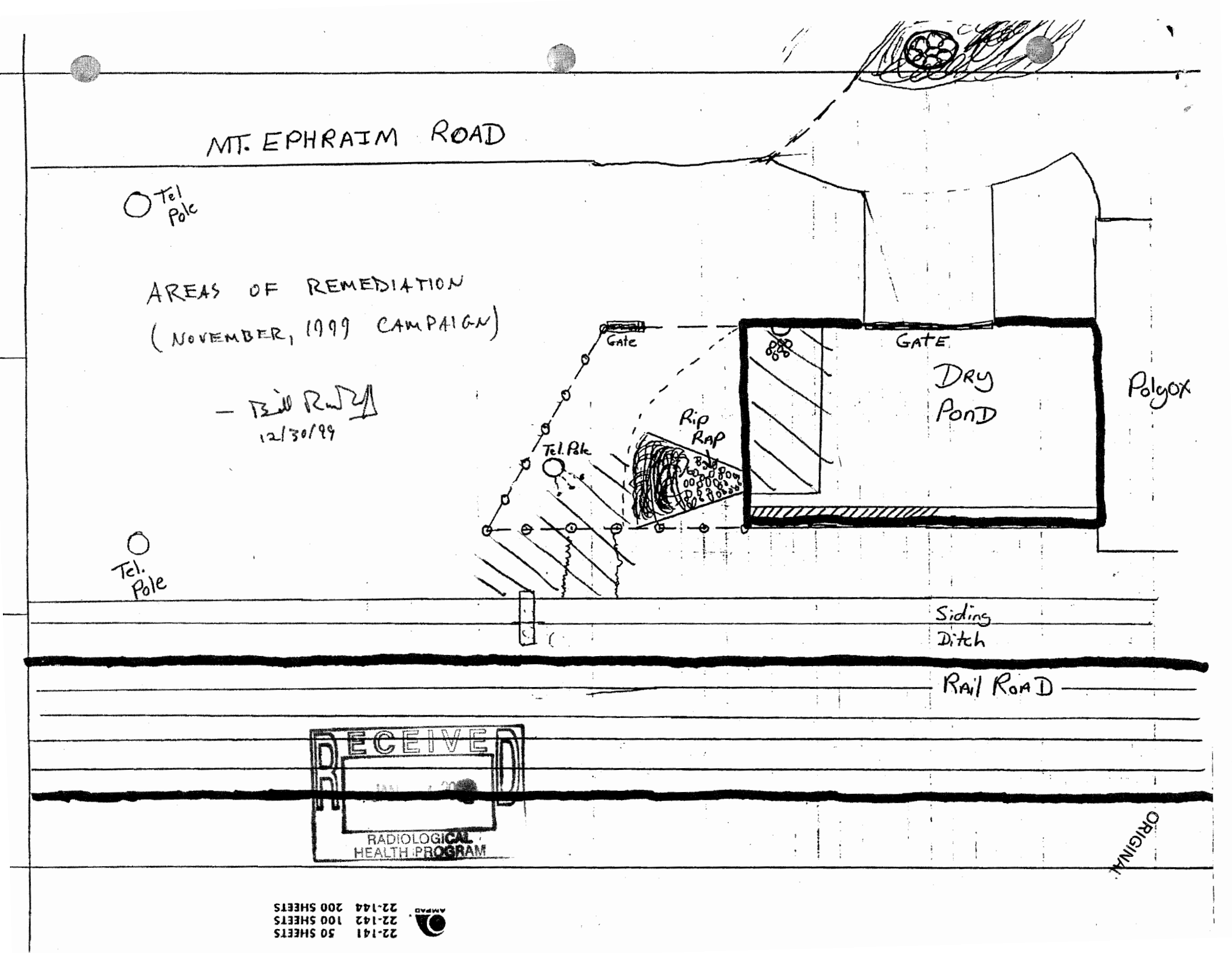
If this report is inadequate in any way, or if you need additional information, please let me know.

Sincerely,

Neutron Products, inc.

Bill Ransohoff

Enclosures


MT. EPHRAIM ROAD
Tel Pole
AREAS OF REMEDIATION
(NOVEMBER, 1999 CAMPAIGN)
– Bill Rush
12/30/99
Gate
GATE
DRY
POND
Polygon
Rip
Rap
Tel. Pole
Tel.
Pole
Siding
Ditch
RAIL ROAD
RECEIVED
RADIOLOGICAL
HEALTH PROGRAM
ORIGINAL
22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

RCM 1/5/2000

HP CONSULTANT REPORT FOR NOVEMBER 1999

Introduction

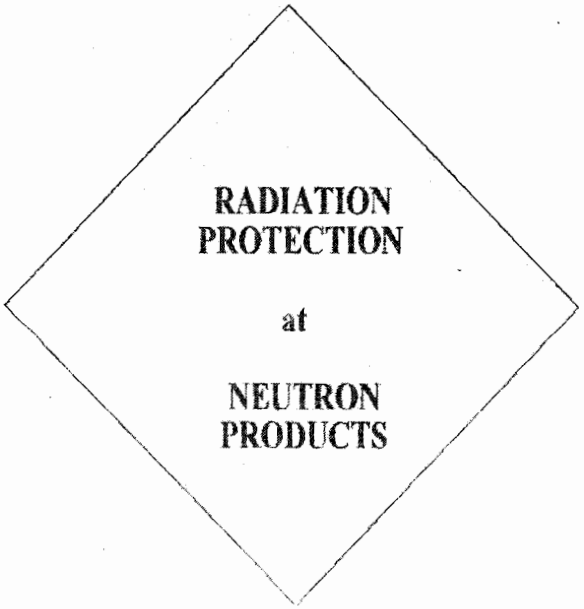
On November 30, 1999, I performed a radiation protection audit of the LAA at NPI and held discussions with Jeff Williams and Bill Ransohoff.

1.0 Dry-Pond Remediation

Dry-pond remediation is now receiving high priority at NPI.

1.1 Removal of Contaminated Soil

A large quantity of soil was removed from the Dry Pond during November. Dose rates at 3 feet above the surface were reduced significantly. The bulk of the soil removed was packaged in B-25s and is now stored in the LAA courtyard. A smaller portion was transferred to the courtyard in supersacks of the type previously used for this purpose. These bags are known by previous experience at NPI to retain their confinement integrity for several months. Jeff Williams told me the intent with respect to long-term storage is to transfer the soil to B-25 containers.



1.2 Reducing the Amount of Co-60 Discharged to the Dry Pond

I was pleased to observe during this visit that the problem of Co-60 migration from the courtyard surface (apparently) to the dry pond is receiving attention in detail from higher-level technical and management personnel, viz., Jeff Williams and Bill Ransohoff. In discussions with them regarding what they are learning I became optimistic about finding a solution. For example, investigations in progress are providing evidence that the radionuclide reaches the pond attached to molecules of humic materials found in soil. Such attachments could form in small soil deposits in the courtyard area and/or within the "stone trap" located below grade in the runoff path between the courtyard and the dry pond. The highest concentrations of cobalt are being found in a black silt-like substance near the runoff entrance to the dry pond. Williams points out that the cobalt could work its way further into the pond area through ion-exchange mechanisms. At this point in the investigation the indicated solution is better decontamination of the runoff, by supplementing the "stone trap" with a decontaminating (ion exchange) agent, and some plastic packing material which will hopefully remove the contaminated dirt and be much easier to clean and reuse. I had always supposed the cobalt simply to be dissolved or entrained in rainwater.

In a memo on the subject "Dry Pond/Stone Trap Remediation" dated November 29, 1999, Bill Ransohoff reports early results of his

investigations of clinoptilolite as a candidate decontaminating agent. Clinoptilolite gravel placed in the "Stone Trap", when recovered and washed using tap water, produced a slurry of approximately 3,300 pCi/g. The cleaned clinoptilolite contained only 122 pCi/g. Clinoptilolite was also tested at the point of discharge from the dry pond. The slurry washed from this clinoptilolite contained 227 pCi/g. 115 pCi/g was found in leaves and dirt samples taken near the clinoptilolite at the point of discharge.

At this stage it seems to me that while a worthwhile degree of decontamination may very well be achievable at the "stone trap" location, a practical way of reducing the amount of cobalt leaving the courtyard in runoff is also needed. I suggested looking into the feasibility of periodically decontaminating the courtyard area using a high-pressure, small-diameter, low volume stream of water. Such a stream would remove considerably more soil and humus than even a torrential rain. This suggestion assumes that a practical way can be found to collect this water from the stream before, or immediately after, it reaches the courtyard drain. It also assumes that the water collected could be disposed of at lower cost than the disposal of soil removed from the dry pond ($20 per ft^3). Williams and Ransohoff may consider this possibility.

2.0 Training

2.1 Orientation Handout

RSO Jeff Williams has identified a need to augment the literature given to new NPI employees in connection with the orientation process with a new handout covering much of the material in the lecture. He is performing this task himself and expects to complete it soon.

2.2 Firefighter Training

During October and November NPI personnel conducted four training sessions for local firefighters. Jeff Williams reports that they are much better equiped now, including radiation detection and measurement instrumentation. The NPI training included the understanding and interpretation of survey meter readings, with emphasis on how to use the instruments appropriately. Interactions of this nature seem to be resolving some of the questions that might *unnecessarily* prevent firefighters from performing their duties should a fire break out at the facility. There is little, if any, reason to believe now that they might stay too far from a fire to control or extinguish it even though no significant radiation risk was involved. Boundaries specifying where to stop and wait for a Haz-Mat team have been moved inward to more reasonable distances.

3.0 HECM Background

At my request Jeff Corun measured background levels at the HECM location. The highest level found was 15 μR/h; the highest permissible background is 50 μR/h. No operational problems have arisen since my last audit. A technician from the Helguson Company came to NPI in October for purposes of semiannual maintenance. He told Corun that their will be no Y2K problem.

I reviewed the HECM background records for October, 1999. The printouts provide background rates at each detector on a daily basis. The rate at the detector having the maximum rate is shown in Table I for each day in October. All of the maxima occurred at Detectors 1 (feet) and 2 (hands) — primarily at Detector 1, as would be expected. The rates at Detector 1 were rather uniform throughout the month; Corun vacuum cleans the recess in which these detectors are located anytime their background levels seem to be

rising. During 6 days, beginning with the 19th, the maximum rates occurred at the hand level. Detectors 3 and 5, just above and below the hand level, were elevated to a lesser extent on these dates as well. The background at Detectors 3,4 and 5 returned to normal on the 27th. Corun could not recall any event that might account for this anomaly. There is no reason for concern. When the HECM background level increases at a detector for any reason the counting time is automatically increased to provide the required degree of sensitivity to contamination.

That is why it is unnecessary to require a minimum counting time for this instrument. The minimum counting time imposed for it causes unnecessary work anytime the background is unusually low. When the background is low the HECM can achieve the same sensitivity in less counting time, so it automatically decreases that time. But the time can go below the minimum counting time artificially set by Neutron's regulators to be 30 seconds. When that happens it is necessary to reset the computer program and count again. The only way to increase the counting time above the 30 second minimum is to temporarily select a higher sensitivity level. Nothing is accomplished by the extra work; it is only done because the background goes down.

4.0 Survey Forms

While reviewing the HP Monthly Checklist file I noticed that most of them include a level (radiation, contamination, concentration, etc.) which, if exceeded, must be promptly reported by the technician to the RSO. Such "trigger" levels are very important. Without them some technicians fail to attach enough importance to what might be a serious occurrence requiring immediate management attention. *I recommend including an RSO notification trigger level on all such forms.*

5.0 Monthly Type V Radiation Surveys

These surveys are usually performed using an E-600 instrument. The technician marks the dose rates measured at various periphery locations on a survey map for the facility. I reviewed the maps for January through November, 1999, looking primarily for the maximum dose rate entries. In general, the highest levels found appeared to be in the direction of the house belonging to the member of the public who receive the highest dose last year. The levels measured on a line from the house to the radioactive waste storage rooms seemed to be a little higher than those to the right or left. It occurred to me that relocation of certain B-25 shields might be indicated.

I attempted to verify my observation using a Bicron µrem meter calibrated 11/17/99. To the right and left of the courtyard gate are large concrete slabs which provide considerable shielding. Therefore it was only necessary to take measurements along the length of the gate. Facing the waste rooms, I found a point near the right end of the gate opening at which the dose rate was ~200 µR/h, less to the right because of the concrete slab, and less to the left, *possibly* due to less shielding of the waste-room contents. This point did seem to be on the line from the house to the radioactive waste storage rooms.

During December the contents of these rooms were reorganized, and considerable interior shielding was added. Jeff Williams has informed me by telephone that dose rates both on and off site were reduced. It will be interesting to find out whether the high point I think I identified is no longer a peak.

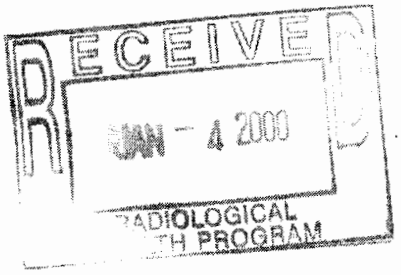


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TABLE I. HECM BACKGROUND		
Oct. '99 Date	Maximum Rate Among Detectors	
	Feet (Detector 1)	Hands (Detector 4)
1	142	
4	142	
5	147	
6	143	
7	142	
8	144	
11	141	
12	143	
13	144	
14	141	
15	143	
18	144	
19		159*
20		159*
21		159*
22	(143)	159*
25	(147)	160*
26	(147)	159*
27	147	
28	144	
29	149	
1	143	

* Detectors 3 and 5, just above and below the hand level, were elevated to a lesser extent.

ORIGINAL

neutron products inc

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

July 11, 2000

Dickerson, Maryland 20842

Dear Mr. And Mrs.

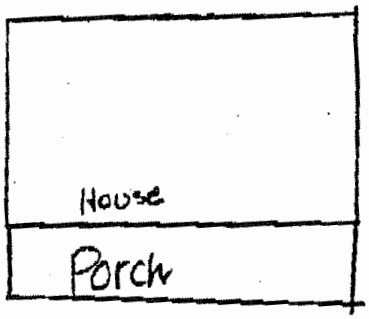
On July 10, 2000, Cathy Bupp conducted an off-site survey of your property as part of Neutron Products' ongoing environmental survey program. During the course of this survey, a single area was detected with a higher than background radiation level. The location of this area is indicated on the attached sketch. The rectangular area of contamination was approximately 2 by 4 feet and eight inches deep. Although we can not be certain, the dispersed pattern of the activity is indicative of an older particle which has slowly dissolved and diffused through the surrounding soil over many years.

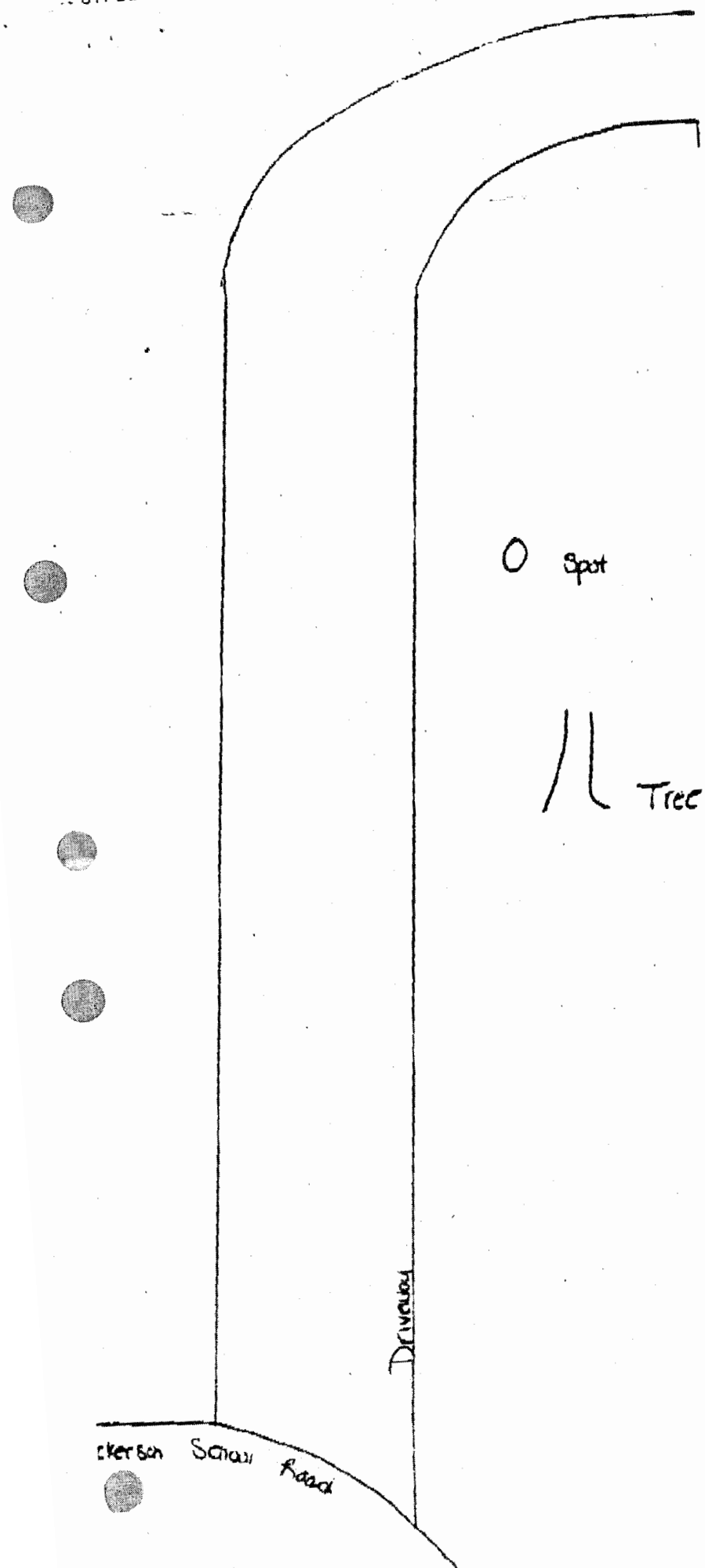
We removed the contaminated soil, about 28 gallons in total, until radiation levels returned to normal background. The soil was taken to Neutron for analysis. The highest radiation dose rate at 20 centimeters (8 inches) was 6 microR per hour above background. Natural outdoors background radiation in the Dickerson area is about 10 microR per hour. The increased radiation level immediately above this source is comparable to natural background radiation levels in many other parts of the country and does not pose a credible health or safety risk. The radiation levels drop to that of local natural background within 2 feet. Considering the location of the contaminated soil and the low increase over natural background confined to a very small area, it is unlikely that the cobalt-60 contamination found would have any measurable effect on anyone's radiation exposure.

Our analysis confirmed that the activity found was cobalt-60 and that the total activity was about 1.25 microcuries distributed in about 300 pounds of soil. The highly unlikely ingestion of this entire quantity of cobalt-60 would result in a effective dose equivalent of 12.5 millirem or approximately 4 percent of the average annual natural background exposure from all sources which in this area is about 300 mrem per year. The hypothetical risk of increased health effects from ingestion of the entire quantity of cobalt-60 contamination would be inconsequential. Ingesting 300 pounds of dirt, regardless of radioactive contamination would probably result in far more serious problems.

We have replaced the soil we removed with top soil and planted sod above that. Both the fill and the sod were obtained from local vendors. We have alerted the Maryland Department of the Environment of our findings, and it is our understanding that they will issue a separate report.

Cathy Buff Surveyed 7-10-00
Meter Used - E-600 + Bicron





Spot located

3 ft in front of Porch
25 ft to left of the house
10 ft from tree
15 ft. from driveway

We appreciate your cooperation with our environmental survey program and apologize for any inconvenience. Should you have any questions, or if you wish to have your property re-surveyed at any time, please feel free to contact Cathy, Bill Ransohoff, or me at 301-349-5001.

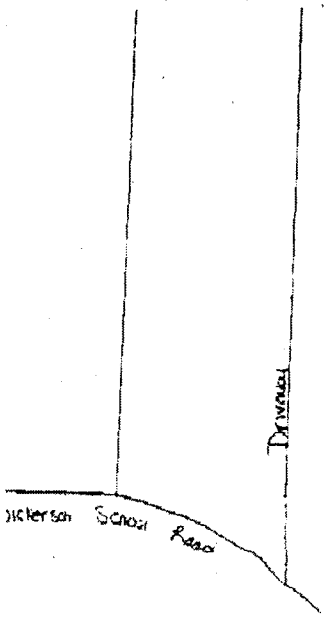
Very truly yours,

Neutron Products, Inc.

Jeffrey Williams
Radiation Safety Officer

Enclosure

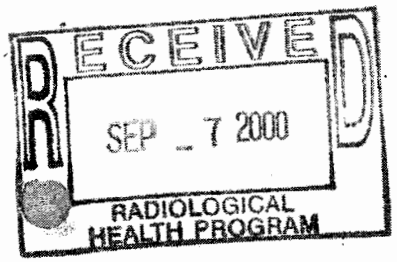
neutron products inc



Spot located
3 ft in front of Porch
25 ft to left of the house
10 ft from tree
15 ft from driveway

Ken 9/8/00

ORIGINAL



neutron PRODUCTS inc

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

31 August 2000

Mr. Carl Trump
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Re: MD-31-025-01

Dear Mr. Trump,

I am writing to certify that Marvin Turkanis conducted the random inspection for the month of July on 18 July 2000 and that the report is available for your review. In addition, I have enclosed Bob Alexander's report for the month of July.

In order to fulfill our reporting requirements under License Condition 15C, in the month of July there was one HECM reading exceeding 22,000 dpm. On 10 July 2000, a shoe cover worn by #019 counted 73,738 dpm. As this is more than 50,000 dpm, it was promptly reported to RHP as required by License Condition 17D.

Routine soil surveys were conducted and contaminated soil was found in the west end of the dry pond. In addition to the routine soil sampling, additional samples were taken on July 2, 5, 6, and 15. Sample locations were focused on areas undergoing remediation, including the stone trap and the area west of the Courtyard fence which had been substantially remediated in June. The highest levels of activity were found in the stone trap. The data is available for your review. The levels of contamination found in the area west of the Courtyard fence were used to direct follow-up remediation efforts. The levels of contamination found in the stone trap were consistent with those found there on previous occasions, and do not represent a radiological hazard.

The stone trap remediation was conducted on July 2, 3 and 15 and it is estimated that approximately 320 μCi were removed. That material is now stored in the LAA. It is estimated that the continuing remediation of the area west of the Courtyard fence removed 3 drums containing approximately 30 μCi. The drums are stored in the LAA.

The routine environmental survey performed on a section of our property every month revealed no spots of cobalt-60 contamination. The survey for July was conducted on 31 July and focused on the northeast area of the property.

The off-site survey for July was conducted on 10 July and revealed a spot of contamination. As you know, Neutron promptly removed the contamination, notified RHP of its findings and submitted a letter to the property owner. As a result of the findings and at the prior

suggestion of the property owner, Neutron conducted an additional July survey on a parcel of public property in the same general area. No cobalt-60 contamination was found. Survey records are available for your review.

If this report is inadequate in any way, or if you need additional information, please let me know.

Sincerely,

W.L. Ransohoff
RSO-Designee

ORIGINAL

NEUTRON PRODUCTS INC

22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-2433

31 October 2000

Mr. Carl Trump
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Re: MD-31-025-01

Dear Mr. Trump,

I am writing to certify that Jeffrey Williams conducted the random inspection for the month of September on 28 September 2000. I have also enclosed Bob Alexander's report for the month of September.

In order to fulfill our reporting requirements under License Condition 15C, in the month of September there were no HECM readings exceeding 22,000 dpm.

Routine soil surveys were taken on 28 September and lightly contaminated soil was found north of the LAA courtyard. In addition to the routine soil sampling, additional samples were taken on September 20 and 29. The highest levels of contamination were found in the drypond. Lower levels of contamination were found beyond the rip-rap downstream of the drypond, along the abandoned rail siding, in the broken drainage pipe and west of the LAA courtyard fence. The data is available for your review. All levels of contamination found were consistent with those found on previous occasions, and do not represent a radiological hazard.

The routine environmental survey performed on a section of our property every month revealed no spots of cobalt-60 contamination. The survey for September was conducted on the northeast area of the property.

The off-site survey for September was conducted on 29 September on property not previously surveyed by Neutron and revealed no spots of contamination. Survey records are available for your review.

If this report is inadequate in any way, or if you need additional information, please let me know.

Sincerely,

Neutron Products, inc.

Bill Ransohoff

W.L. Ransohoff
RSO-Designee

HP CONSULTANT REPORT FOR SEPTEMBER 2000

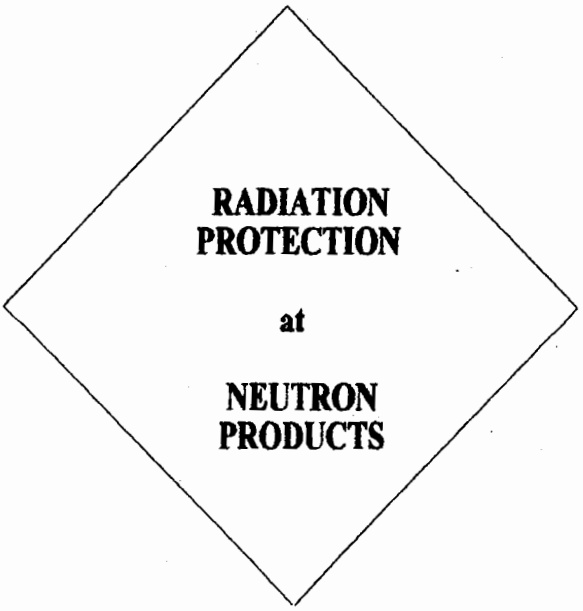
Introduction

On September 28, 2000, I visited the LAA at NPI to perform an audit of the current radiation protection situation. I found no unsafe conditions. As has always been the case during my visits, unusually good housekeeping was in evidence. RSO Jeff Williams and I performed radiation surveys in the court yard area, including exposure rate measurements in and around the large, walk-in storage containers being used for radioactive waste. Not including the areas in front of the waste room doors, we found no rates higher than 20 mR/hr.

1.0 High Efficiency Filters

1.1 Hot-Cell Exhaust System

The primary high efficiency filter serving the hot-cell exhaust system is replaced when either the pressure drop across it, or the dose rate from it, exceeds pre-determined levels. The filter was changed during September because of the pressure drop. The dose rate was considerably lower than usual; it was estimated that the filter contained only 71 mCi of Co-60 this time. The work was performed by three employees who normally work in the LAA. The collective dose for the task, as determined by self-reading dosimeters, was 230 mrems; the highest individual exposure was 95 mrems.



While I was there, an LAA worker was replacing the motor and bearings on the primary blower. In addition, a variable speed drive has been installed to provide for increased fan speed when the hot-cell door is open to improve the ventilation system particle-capture efficiency. This was a 2-day job, with the worker expected to receive between 110 and 170 mrem/day. The maximum dose rate in the vicinity of the equipment was 450 mR/hr. My impression was that this worker is very conscious of and knowledgeable regarding health physics procedures. But even the most experienced people can become overly engrossed in their work and unmindful of dose and contamination control measures. That is not at all un-common, and that is why I believe intermittent surveillance should always be performed by the LAA health physics technician. It's the first thing I was taught to do—46 years ago.

Some time ago I happened to be in the LAA at the time of a power failure. There was a delay of several seconds before power was restored by the emergency generator. Since the pre-filter in the cell is held in place by the pressure difference between the cell and the duct leading to the high efficiency filters, I inquired as to whether the lapse of power had allowed the pre-filter to fall to the floor. I was told that it had. It is my

Prepared by R.E. Alexander, CHP

understanding that a retaining bar is soon to be installed to hold the pre-filter in place.

1.2 New Compactor

I was shown the newly installed radioactive-waste compactor by RSO Jeff Williams. It is located in the decontamination room (between the room behind the hot-cell and the hot-tool storage room). In preparation for the installation the floor of the decontamination room was leveled (pan removed and its cavity filled with concrete), and a sealant was used to paint the room floor. I looked carefully at unit's air exhaust system to evaluate the design features employed to maintain a seal around the filter frames. It looks to me like a better-than-usual design. Williams told me that the efficiency of the filters and their installation will be evaluated using a DOP test aerosol before the unit is used. The filtered air will be discharged into the room behind the cell and will therefore also pass through the hot cell ventilation system prior to release. With double high efficiency filtration, I doubt that the annual radioactivity discharge can be increased significantly. The discharge for 1999 was only 6 μCi. Williams also pointed out that the design of the compactor air handling unit, rather than providing for one large filter, provides for two small ones. This will enable the spent filters themselves to be readily compacted.

Compactor operators will not be exposed to high dose rates from stored hot tools. Most of the sources contributing to the dose rate in the decontamination room have been removed from the hot-tool room, and those that remain are now positioned behind the considerable shielding afforded by the room walls. The dose rate while I was there was measured to be 75 mR/hr maximum at the outside of the door, and of course much lower where a compactor operator would be working. Williams does not anticipate any future need for positioning hot tools where direct radiation could reach the door. I requested a copy of the health physics procedure for initial startup of compactor operations.

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My experience with compactors taught me that the most difficult problem to anticipate is re-expansion of the compressed material — a self-defeating difficulty that has to be overcome, but without violating the integrity of the container. The designers of this new compactor decided to employ disks of slightly smaller diameter than the waste drums. The disks are lowered into place by the compression piston itself during every compression action. At the end of the piston travel the disks are held in place by friction that is generated by five rubber structures attached every 72° to the edge of each disk.

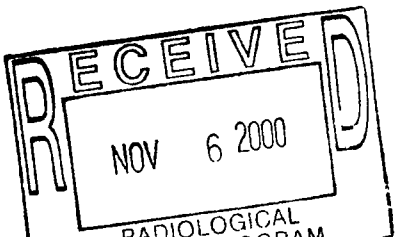
2.0 Dosimetry

2.1 Occupational Dosimetry Services

The Eberline company that has for several years been supplying TLD dosimeter badges for NPI workers has been acquired by Landauer and will no longer offer this service. Landauer has been supplying visitor badge services and is interested in expanding these services to NPI to include worker dosimetry. At the time of my visit NPI personnel had not yet made a decision regarding the new supplier.

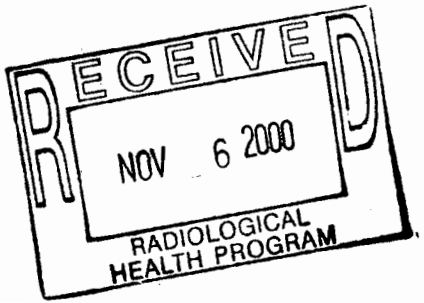
2.2 Electronic Self-Reading Dosimeters

The NPI staff has enjoyed a great deal of dose-control success using electronic self-reading dosimeters (SRDs). A decision has been made to use them in additional ways, e.g., LAA staff; and ten new SRDs have been ordered.



3.0 Training

Jeff Williams has requested regulatory radiation and contamination controls as the topic for the final quarterly training session of the year, which is scheduled for December. It is his policy to devote one class each year specifically to this subject. All employees whose work involves MDE-licensed activities are expected to maintain familiarity with pertinent provisions of Regulations for the Control of Ionizing Radiation, Part D — Standards for Protection Against Radiation.



ORIGINAL

NEUTRON PRODUCTS, INC.

22301 Mt. Ephraim Road, P.O. Box 68
Dickerson, MD 20842
301-349-5001 FAX: 301-349-2433

FAX LEAD PAGE

COMPANY: MDE - RHP

TO: RAY MANLEY

(*Provide copy to:* _____)

Date / Time: 11/6/00 / **FAX Tele. No.** 410 631 3198

# of Pages: 2 **(*incl. Lead Pg.*)** **NPI FAX Log. No.** 00 252

FROM: L. D. WILLIAMS

SUBJECT / MESSAGE:

If FAX is incomplete or illegible, please contact us at 301-349-5001

NEUTRON PRODUCTS inc
22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

November 6, 2000

Mr. Ray Manley
Radioactive Materials Licensing and Compliance Division
Radiological Health Program
Department of the Environment
State of Maryland
2500 Broening Highway
Baltimore, Maryland 21224

VIA FAX 410/631-3198

Re: Radioactive Material License Number MD-31-025-01

Dear Mr. Manley:

Per our conversation of November 2, 2000, please find enclosed information relevant to the off-site contamination discovered during a routine environmental survey conducted last Thursday. Please call if you have any questions.

Very truly yours,

NEUTRON PRODUCTS, INC.

Jeffrey Williams
Radiation Safety Officer

Enclosures

ORIGINAL

neutron products inc
22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

November 6, 2000

Mr.& Mrs. _____

Dickerson, MD 20842

Dear Mr.& Mrs.

Enclosed is a courtesy copy of a letter to Mr. & Mrs. _____ advising them of the results of the survey I conducted on their property on November 2, 2000.

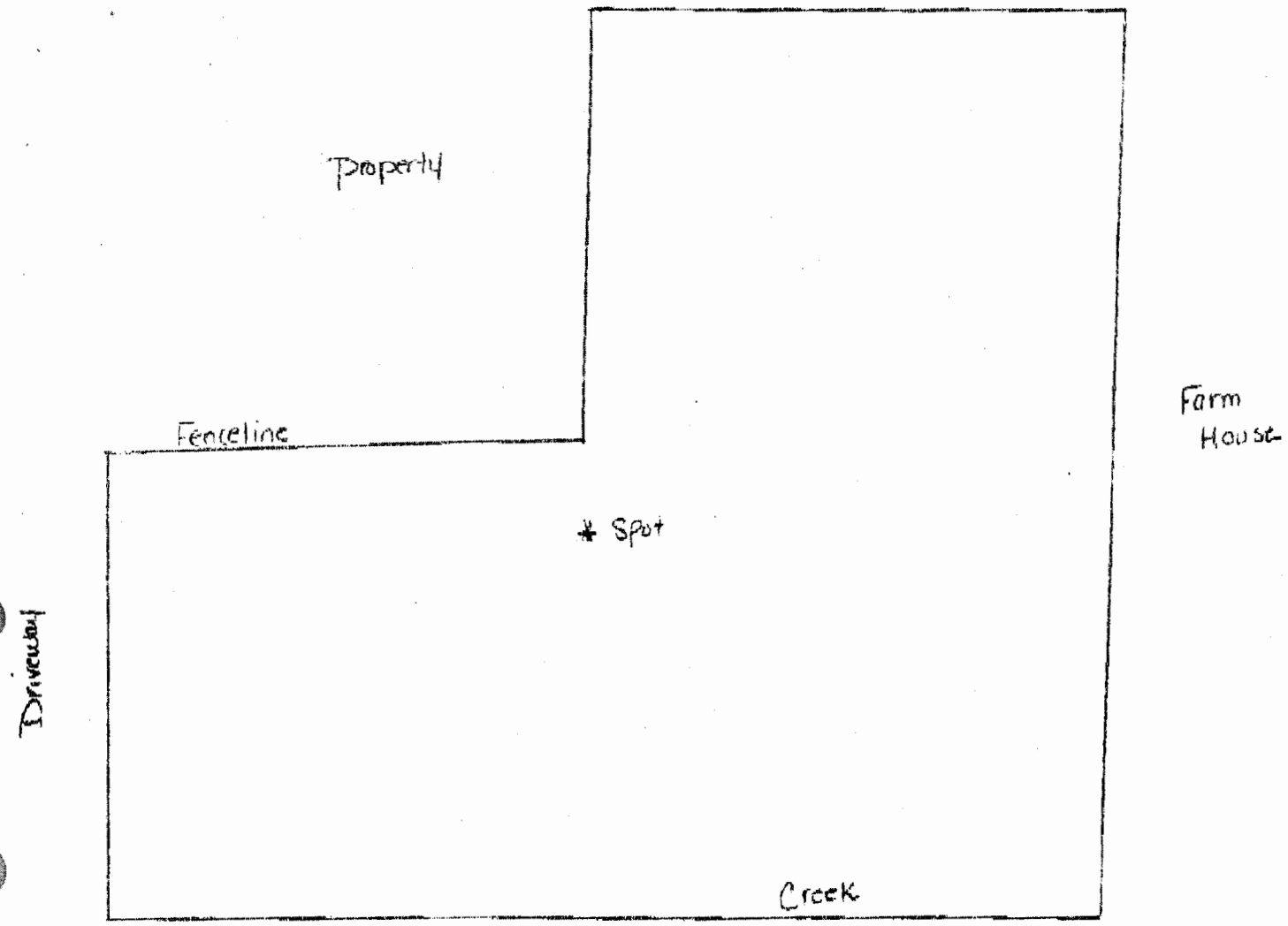
If you have any questions please feel free to contact me at the number above.

Neutron Products, Inc.

Cathy S. Bupp

Cathy S. Bupp
Safety Administrator

Enclosure


Property
Fenceline
Farm House
* Spot
Driveway
Creek
Baseball field
Dickerson Park

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more serious problems.

We have replaced the soil we removed with top soil obtained from a local vendor. We have alerted the Maryland Department of the Environment of our findings, and it is our understanding that they will issue a separate report.

We appreciate your cooperation with our environmental survey program and apologize for any inconvenience. Should you have any questions, or if you wish to have your property re-surveyed at any time, please feel free to contact Cathy, Bill Ransohoff, or me at 301-349-5001.

Very truly yours,

Neutron Products, Inc.

Jeffrey Williams
Radiation Safety Officer

cc: Mr. & Mrs. Bruce Savage

NEUTRON PRODUCTS inc
22301 Mt. Ephraim Road, P. O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007
e-mail: neutronprod@erols.com

November 6, 2000

Mr.& Mrs.

Dickerson, MD 20842

Dear Mr.& Mrs.

On November 2, 2000, Cathy Bupp, Danny Winehcit and Les Demory conducted an off-site survey of the field on your property that is leased by Mr. , as part of Neutron Products' ongoing environmental survey program. During the course of this survey, a single area was detected with a radiation level slightly higher than background. The location of this area is indicated on the attached sketch. The circular area of contamination was approximately 1 foot in diameter and 1½ foot deep. The majority of the radioactivity detected was approximately one foot below the surface. Although we can not be certain, the dispersed pattern of the activity is indicative of an older particle which has slowly dissolved and diffused through the surrounding soil over many years.

We removed the contaminated soil, about 10 gallons in total, until radiation levels returned to normal background. The soil was taken to Neutron for analysis. The highest radiation dose rate at 25 centimeters was 3 mircoR per hour above background. Natural outdoors background radiation in the Dickerson area is about 10 microR per hour. The increased radiation level immediately above this source is comparable to natural background radiation levels in many other parts of the country and does not pose a credible health or safety risk. The radiation levels drop to that of local natural background within 2 feet. Considering the location of the contaminated soil and the low increase over natural background confined to a very small area, it is unlikely that the cobalt-60 contamination found would have any measurable effect on anyone's radiation exposure.

Our analysis confirmed that the activity found was cobalt-60 and that the total activity was about 0.4 microcurie distributed in about 80 pounds of soil. The highly unlikely ingestion of this entire quantity of cobalt-60 would result in a effective dose equivalent of 4 millirem. This is approximately 1.3 percent of the average annual natural background exposure from all sources, which in this area is about 300 mrem per year. The hypothetical risk of increased health effects from ingestion of the entire quantity of cobalt-60 contamination would be inconsequential. Ingesting 80 pounds of dirt,

ORIGINAL

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR & RADIATION MANAGEMENT ADMINISTRATION

Radiological Health Program

MEMORANDUM

TO: Alan Jacobson, Health Physicist Supervisor Radioactive Material Inspection & Compliance Section

FROM: Ray Manley, Health Physicist Supervisor Radioactive Materials Licensing Section, Radiological Health Program (RHP)

DATE: June 14, 2001

SUBJECT: **INSPECTOR SUMMARY FOR June 13, 2001 NEUTRON PRODUCTS, INC. INSPECTION**

The following subject matter was reviewed at NPI pursuant to licensee activities conducted in the Limited Access (LAA) and surrounding areas.

1. Compactor
2. Radioactive material waste management
3. Previous inspection violations and concerns
4. Status of operational systems in the LAA
5. LAA surveys (documentation by RKN)

COMPACTOR

Compacting at NPI is being conducted by authorization of NPI procedures as permitted by amendment 44 of the 01 license. NPI started use of the new compactor on 10/21/2000. The licensee is using the compactor in the assistance of meeting current Circuit Court shipping deadline requirements and 01-license condition 21 shipping deadlines. The licensee stated that they intend to meet the Court Order June 30, 2001 deadline. The shipping deadlines are reviewed in the subsequent item in this report. To the date of this inspection, the licensee has compacted 12 drums at a compaction rate between 5-1 an 7-1. Discussions with the RSO indicate unsuccessful attempts by the licensee to increase the compaction rate higher than 7-1 however, these attempts resulted in bulging drums and failure of the inner retention devices (**concern**). The licensee admits that eight out of the first 12 drums NPI compacted sustained some level of damage (imperfections) pursuant to this attempt to overstuff the drums. The licensee has desisted in this overstuffing technique. The

RSO stated that he anticipated an approximate total of 19 compacted 55 gallon drums with approximately 229 millicuries of C0-60 to be included in the prior to June 30th shipment. Current NPI individuals trained for and conducting compacting activities are Jeffrey Williams, Richard Demory, Bill Ransohoff and Brad Young. As per the procedures, all operators are using full-face respirators. High volume air sampling conducted during compactor operations indicates low airborne concentrations (average concentrations in 10^{-10} uCi/cc range). No lapel samplers are being used during operations to evaluate breathing zone (**concern**). Licensee states their evaluation by counting respirator filters is unreliable because of transfer of hand contamination to the filter. Initial meter surveys are conducted prior to and during operations. Eight contamination smears taken in areas around the compactor by the licensee following operations have indicated levels of contamination below operational procedure limits. There was one contamination incident pursuant to pre-compacted waste. On June 4, 2000, compactor operators sorted through uncompacted boxes of waste to remove disposed of aerosol cans. This activity was conducted without the knowledge of the RSO who was not at the site at the time. The operation created significant level of personnel contamination (**concern**). Dose-rates of compacted drums average 130 mR/hr at a meter with a maximum contact dose-rate of 1200 mR/hr. All operators use extremity dosimetry. The RSO stated that the compactor has had no malfunction problems of any kind since the inception of its use. The RSO stated that when waste of multiple generation dates is compacted the drum is labeled with the date of the oldest waste. However, this inspector was not able to visually inspect any compacted drum for labeling or potential damage because the licensee has stored the compacted drums in the rear of the South waste room with approximately a dozen empty drums in front of them and with a dose-rate at the waste room door of approximately 1 R/hr (**concern**).

RADIOACTIVE MATERIAL WASTE MANAGEMENT

Summary of NPI shipping requirements:

NPI must ship by Court Order, 600 cubic feet of low activity waste by June 30, 2001. By June 30, 2002, NPI must ship at least 80 % of the remaining low activity waste activity waste stored at the facility. NPI must by 01 license condition 21 ship out all RAM waste (stored outside the pool) generated after August 1999 within two years of its generation date (first deadline August 2001). For waste generated after August 1999 (stored in the pool) the licensee must ship this waste within three years of its generation (first deadline August 2002). All the radioactive material waste generated by the licensee prior to August 1999 must be removed from the facility by August 2004.

Summary of proposed prior to June 30, 2001 waste shipment

The RSO indicated that the waste shipment would include 19 drums of compacted waste in 55-gallon drums with activity of 229 mCi and boxes containing uncompacted waste. The total estimate of shipped activity is 500 mCi. The RSO indicated that the waste shipped would include some of the prior to August 1999 waste and waste generated after August 1999. The waste is to be loaded into a NPI lead shielded exclusive use truck container and shipped as LAA to ATG for reduction by incineration (50-1 to 100-1) and subsequently shipped for burial to Envirocare. This container will be locked and stored in the unrestricted parking lot during loading and prior to NPI transport (**concern**).

ORIGINAL

NPI waste storage practices in the LAA

This inspector identified a number of concerns with waste storage practices in the LAA. There is a significant amount of radioactive material waste and/or sources being stored in the courtyard and not in the two radioactive material waste rooms (**concern**). Outside of the storage rooms is the following storage:

18 B-25 boxes of radioactive material soil (approximately 96 cubic feet apiece)

54 55-gallon drums of radioactive material soil (approximately 7.5 cubic feet apiece)

2 locked truck trailers (Sealand type) containing a portion of the above drums.

Large locked blue trailer (Sealand type) containing 46 boxes of uncompacted waste. (for prior to June 30, 2001 shipment and six C0-60 sources jammed in teletherapy heads.

55-gallon waste container of uncompacted waste removed from south waste storage room to allow for storage of empty compactor drums (labeled as Yellow-II).

B-25s All soil in the B-25s was not secured (**concern**). B-25s filled post to August 1999 are tag labeled with isotope, date of removal and estimate of activity (all .2 mCi) and a "CRAM". B-25s filled prior to August 1999 were stenciled on the side indicating radioactive soil. One of the B-25 lids was slid open approximately 5-inches (reason unknown by RSO) (**concern**). This would appear to allow water access into the unit during a rainstorm. Other evidence of this was noted in another B-25 that had approximately 3-inches of water on top of the soil in the container (**concern**).

55-gallon drums. No retaining rings were noted on any drums containing soil (**concern**). There was a significant level of rust on the drums some to the point of the entire drum being brown instead of the usual black color (**concern**). Many drums were not labeled as to any aspect of their contents (**concern**).

Large blue Sealand type. Dose rate at contact was 90 mR/hr. Dose rate at 30 cm was 50 mR/hr. The only labeling was almost nonlegible (rusted) CRA sign on front of the unit. No radiation signage coloration was visible and the radiation symbol was totally illegible (**concern**).

Approximately 4 yellow plastic bags containing LLW were noted stuffed in the rear of the North Waste room. NPI had previously indicated that all bagged waste of this type would be drummed due to a history of deterioration of the plastic. The RSO stated that all other bags had been drummed, however during the waste room cleanout they had discovered more. No explanation was given as to why the bags were not subsequently drummed (**concern**).

PREVIOUS INSPECTION VIOLATIONS AND CONCERNS

An interview was held with Mat Repp in the LAA. Mr. Repp indicated that he was now familiar with the roughing filter change procedure. He showed a number of documents in the hot cell log indicating proper documentation of a roughing filter change in accordance with the procedures. He showed that a copy of the procedure is now located in the LAA.

STATUS OF OPERATIONAL SYSTEMS IN THE LAA

Mr. Williams as RSO indicated that he is getting into the LAA only 4 times a month (**concern**). An interview with Jeff Corun (hot cell operator) indicated that the current activity in the hot cell was the recycling of radiation processing sources prior to transfer into the D-1 irradiator. He indicated he can process approximately 14 of these sources in two days. He also indicated that the recycle process and transfer had recently been completed for the D-II irradiator.

The licensee has a daily LAA checklist that includes check of the LAA for stray animals in the area. NPI has had previous problems with potential animal vectors through dogs and birds. The LAA inspection team observed a female cat and litter located in the rear of the LAA courtyard area adjacent to the North wall of the welding shop (**concern**). Adjacent to the cats was evidence (food containers) that NPI personnel from the welding shop had been feeding the animals. Inspection of the welding shop indicated two uncontrolled entrances into the LAA from the shop via large windows that crank open. This appears to show a lack of control by NPI management regarding access into the LAA. (**concern**). The welding shop is a restricted area, however, surveys at the window indicated a dose rate of 7 mR/hr. There was no "CRA" sign posted in the area (**concern**).

When exiting the LAA it was determined that the initial contamination frisker was not operational (**concern**). The RSO indicated that the initial frisking activities had been moved to the frisker outside of the HECM because of temporary activities in the LAA raising the background in the frisker area and he was unaware of the fact the unit was nonoperational. Use of the HECM area frisker appears to potentially allow transport of significant contamination past the shower area (**concern**). The RSO subsequently determined that the initial frisking station could be made operational by replacing the detector.

LAA parameters 2001

pH 5-6
conductivity 1-5 u/Siemens-cc
pool activity max 8×10^{-4} uCi/cc avg. 6×10^{-5} uCi/cc
large volume air sampling maximum 1.7×10^{-7} uCi /cc
monthly dumpster surveys—background
minipump airborne (hot cell) 1.1×10^{-13} uCi /cc
since 9/2000 all meters calibrated on quarterly frequency
inventory and leak test of sealed sources last conducted 3/28/2001 all <.005 uCi
contamination smears maximum noted in March 2001 to rear of hot cell door 606,000

dpm/100cm^2 (licensee states due to radioprocessing recycle for D-II)
respirator maintenance check conducted monthly

MISCELLANEOUS

The licensee provided training documentation upon sign in to the facility. All visitors must initial that they have reviewed this documentation. Three pages of the intended documentation was not issued to the inspectors or other recent visitors (**concern**)